

## **Appendix B: Sampling and Analysis Plan (SAP)**

*Includes Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP)*

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**Final**  
**Sampling and Analysis Plan**  
*Parcel 15 (Portac) Investigation*

Ecology Facility Site No. 1215 / Cleanup Site No. 3642

**April 2016**

Prepared for

**Port of Tacoma and  
Portac, Inc.**

Prepared by



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## Abbreviations and Acronyms

ASTM	American Society for Testing and Materials
ATD	at the time of drilling
bgs	below ground surface
bml	below mudline
CFR	<i>Code of Federal Regulations</i>
cm	centimeter
COC	chain-of-custody
DM	data manager
DQO	Decision Quality Objectives
DO	dissolved oxygen
DOT	U.S. Department of Transportation
DTW	depth to water
Ecology	Department of Ecology, Washington State
EDD	electronic data deliverable
EIM	Environmental Information Management, Washington State Department of Ecology
FD	field director
FSP	field sampling plan
GPS	global positioning system
GSI	GSI Water Solutions, Inc.
HDPE	high-density polyethylene
HSA	hollow stem auger
HSP	health and safety plan
ID	identification
IDW	investigation-derived waste
LG	licensed geologist
Log Yard	former log yard area
LCS/ LCSD	laboratory control sample/ laboratory control sample duplicate
MDL	method detection limit
MQO	Measurement Quality Objectives
MRL	method reporting limits
MS/MSD	matrix spike/matrix spike duplicate
MLLW	Mean low low water
MTCA	Model Toxics Control Act, Washington State
NSDS	nylon-screen diffusion sampler
NTU	nephelometric units
ORP	oxidation-reduction potential
PM	project manager
Port	Port of Tacoma
Portac	Portac, Inc.
PPE	personal protective equipment
PVC	polyvinyl chloride
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
RCC	roller-compacted concrete
RCW	Revised Code of Washington

**Abbreviations and Acronyms (continued)**

RI	remedial investigation
RIWP	remedial investigation work plan
RPD	relative percent difference
SAC	sampling and analysis coordinator
SAP	sampling and analysis plan
Sawmill	former sawmill area
SC	specific conductance
SMS	Sediment Management Standards, Washington State
SOP	standard operating procedure
SRM	standard reference material
TBD	to be determined
UULC	Washington Utilities Underground Location Center
WAC	Washington Administrative Code
WCT	Wapato Creek transect



# 1 Introduction

This *Sampling and Analysis Plan (SAP)* was prepared by GSI Water Solutions, Inc. (GSI), on behalf of the Port of Tacoma (Port) and Portac, Inc. (Portac), to meet requirements of their Agreed Order (Order) No. DE11237 with the State of Washington Department of Ecology (Ecology). This SAP is Appendix A to the *Remedial Investigation Work Plan (RIWP)* for the Parcel 15 property (Site). The Site is located in an industrial area between Interstate 5 and Commencement Bay, in Tacoma, Washington, as shown in Figure 1 of the RIWP. Portac and its predecessors leased the Site from the Port beginning in 1974 and vacated the Site in 2009. The Site consists of two functionally distinct historical areas: the former sawmill area (Sawmill) in the southwestern part of the property, and the former log yard area (Log Yard) occupying the remainder of the Site, as shown in Figure 4 of the RIWP.

The purpose of this SAP is to ensure that field sample collection, handling, and laboratory analysis conducted during the RI will generate representative data to meet project-specific data objectives in accordance with Washington State Model Toxics Control Act (MTCA; Revised Code of Washington [RCW] 70.105D), MTCA regulations (Washington Administrative Code [WAC] Chapter 173-340), and Washington's Sediment Management Standards (SMS; WAC 173-204).

This SAP has two major components: a *Field Sampling Plan (FSP)*, which defines field protocols, and a *Quality Assurance Project Plan (QAPP)*, which defines analytical protocols. The FSP and QAPP are presented in Sections 2 and 3, respectively.

## 2 Field Sampling Plan

### 2.1 Project Organization and Responsibilities

This SAP will be implemented by a team of GSI scientists and supporting subcontractors who will be retained by GSI. This section summarizes the organizational structure, responsibilities, and resources employed to support the implementation of field activities. Contact information for the project personnel is provided in Table A-1. Information about laboratory services, data validation, and data management is provided in Section 3.1 of the QAPP.

#### 2.1.1 Senior Project Manager (PM)

Rod Struck, LG, is the Senior PM. In this role he will work closely with the Remedial Investigation Manager (RI Manager), the Port, and Portac to address any field issues and approve any changes to the SAP to ensure that project objectives are achieved. The responsibilities of the PM include the following:

- Track schedule and performance of the sampling and analysis activities for conformance with the SAP.
- Coordinate with the RI Manager to address field problems, approve changes or departures from the SAP, and assist with the resolution of any emergencies that may arise.
- Communicate the project status and any required modifications to the SAP to the Port, Portac, and Ecology. Significant changes to the approach presented in this SAP (e.g., abandoning sample locations or moving them more than 30 feet) will be discussed with

Ecology before implementation and subsequently submitted in writing to Ecology per Section VIII.J of the Order.

### 2.1.2 Remedial Investigation Manager (RI Manager)

Erin Carroll Hughes, LG, is the RI Manager. In this role, she will oversee all phases of the investigation and will be the point of contact for the Port and Portac during field work. Erin will work closely with the Field Director (FD) and Sampling and Analysis Coordinator (SAC), discussed below, and other project staff members to ensure that the project objectives are achieved. Departures from the SAP by the field staff will not be made without prior discussion and approval from the RI Manager or the PM and/or Ecology, as needed.

The responsibilities of the RI Manager include the following:

- Oversee the planning and implementation of field sampling efforts for conformance with the SAP.
- Coordinate with the Port and current lessees to obtain Site access and insure compliance with Site security measures. Work to minimize interference with current operations at the Site by the field investigation teams and activities.
- Coordinate with the FD and PM to address any field problems, approve required modifications to the SAP, and resolve any emergencies that may arise.
- Communicate with the Port and Portac regarding the schedule, performance, and any required modifications to the planned sampling and analysis activities.
- Oversee the activities of the FD, SAC, and other field staff members during implementation of the RI to ensure that all planned field investigation activities are being followed.

The RI Manager will work closely with the PM, FD, and SAC to fulfill the listed responsibilities and may be assisted at times by other project staff members.

### 2.1.3 Field Director (FD)

Peter Pellegrin will serve as the FD for all sampling activities. He will report directly to the RI Manager and coordinate with other project staff members. The FD generally is responsible for the following:

- Mobilize crews and equipment for field work and direct the planning and implementation of all field sampling efforts to ensure that the appropriate procedures and methods are used in accordance with the SAP. This includes arranging for necessary sampling equipment and overseeing the operations of subcontractors (see Section 2.1.6).
- Assist the RI Manager in site access and security coordination.
- Coordinate closely with the RI Manager, SAC, and field staff members to address any field issues, changes to the SAP, or emergencies that may arise.
- Function as the Field Safety Officer and ensure that the sampling activities adhere to the Health and Safety Plan (HSP).
- Coordinate with the RI Manager to track the project schedule and performance of the sampling activities in conformance with the SAP.

- Assist with investigation-derived waste (IDW) management to ensure that it is properly labeled, stored, and removed from the Site in a timely manner.

The FD will work closely with the RI Manager and SAC to fulfill the listed responsibilities and may be assisted at times by other project staff members.

#### 2.1.4 Sampling and Analysis Coordinator (SAC)

Renee Fowler will be the SAC and will work closely with the RI Manager and FD. The SAC generally is responsible for the following:

- Mobilize equipment and supplies for field work and direct all aspects of the sampling to ensure that the appropriate procedures and methods are used in accordance with the SAP.
- Coordinate sample packaging and custody transfers with project laboratories.
- Receive and maintain copies of field documentation and laboratory chain-of-custody (COC) forms.
- Assist the FD and RI Manager in tracking the schedule and performance of the sampling and analysis activities according to the SAP.
- Coordinate, assist, and manage sampling efforts with the FD.
- Assist with safety operations.

The SAC may be assisted at times by the FD, RI Manager, and other project staff members.

#### 2.1.5 Field Support

GSI's field staff will work closely with the FD and SAC to facilitate completion of the field sampling efforts. It is anticipated that this project will require support from one to three additional field staff members during the active sampling investigations. The primary responsibilities of the field staff will be to:

- Assist with sample collection and processing efforts.
- Assist with equipment decontamination and the collection of quality control (QC) samples.
- Work with the SAC to ensure that field documentation is complete, accurate, and in compliance with the SAP.
- Support the FD and SAC by assisting with sample handling and transport.
- Assist with IDW management.

#### 2.1.6 Field Subcontractors

Subcontractors anticipated to be used to support this work are listed below by work type:

- **Steadfast Services Northwest.** Will provide professional services for the drilling and installation of new monitoring wells, abandonment of one existing monitoring well, drilling and abandonment of temporary borings, development of new and existing wells, and IDW management and disposal. The drilling contractor will also contract and oversee the concrete coring services for the new monitoring wells and temporary borings.

- **Sitts & Hill Engineers, Inc.** Will provide professional services for the survey of new and existing wells, the new stilling well, and Wapato Creek sampling locations.
- **Applied Professional Services, Inc.** Will provide professional services for the identification (ID) and marking of any subsurface utilities in the vicinity of the new monitoring wells, temporary borings, test pits, and subsurface work to be performed in Wapato Creek.

## 2.2 Health and Safety

The FD will function as the Field Safety Officer during the field work and ensure safe practices and operating conditions are maintained during the field investigation. The field crews will comply with HAZWOPER regulations under 29 *Code of Federal Regulations* (CFR) 1910.120. The FD will provide a safety briefing at the beginning of the field work, during sampling events as needed (e.g., when conducting new or different field activities), and to any new personnel involved in the field activities. Subcontractors will provide daily health and safety tailgate sessions in accordance with their company's health and safety programs.

GSI prepared an HSP (Appendix B of RIWP) in accordance with Occupational Safety and Health Administration regulations found at 29 CFR Part 1910. The HSP covers all known field hazards associated with the tasks necessary to complete the SAP, including methane monitoring during drilling activities. All other consultants, subconsultants, and subcontractors will prepare their own HSP and will be responsible for their own health and safety programs. All field personnel will have stop-work authority during the completion of field activities.

## 2.3 Field Schedule and Sampling Summary

The field work described in the FSP (see Sections 2.4 through Section 2.6) includes four sampling events (Events 1 through 4). These events will occur approximately every 3 months during the next year. Event 1 is scheduled to be completed in May and June 2016. Events 2, 3, and 4 are scheduled for August 2016, November 2016, and February 2017, respectively. The majority of the planned RI field work will take place during Event 1 and includes the following tasks:

- Abandon one damaged Sawmill monitoring well (MW-5) and replace the monitoring well monument for existing Sawmill well (MW-6R).
- Install new groundwater monitoring wells (including a replacement well at the MW-5 location), and collect soil samples from the borings advanced for the installation of new monitoring wells.
- Develop new and existing groundwater monitoring wells.
- Collect soil and groundwater samples from temporary direct-push boreholes.
- Collect soil samples from two shallow test pits excavated adjacent to the former Sawmill dip tank remediation area.
- Collect sediment samples in Wapato Creek adjacent to the Site.
- Collect groundwater samples from the monitoring well network.
- Collect surface water and porewater samples from Wapato Creek.

- Perform a tidal study in nearshore monitoring wells and a stilling well installed in Wapato Creek.
- Perform limited aquifer tests (e.g., slug test, modified pump test) on selected monitoring wells.

Events 2, 3, and 4 will include groundwater monitoring and porewater and surface water sampling in Wapato Creek, as described in Sections 2.4.7, 2.6.1, and 2.6.3, respectively.

## **2.4 Monitoring Wells**

The Site has 12 existing groundwater monitoring wells and three existing piezometers. Of these wells, seven monitoring wells are located in the Sawmill area, and five monitoring wells and the three piezometers are located in the Log Yard (Figure 13 of the RIWP). To address existing data gaps, seven new monitoring wells will be installed in the Log Yard in the locations shown in Figure 13 of the RIWP. One existing monitoring well, MW-5, was discovered to be damaged in the Sawmill area and will be abandoned and replaced with a new monitoring well (MW-5R). After the new monitoring wells have been installed there will be a total of 19 monitoring wells at the Site, with 12 monitoring wells in the Log Yard and 7 monitoring wells in the Sawmill (Figure 13 of the RIWP).

All modifications to monitoring wells, including abandonment, drilling, and installation, will be performed by an environmental driller licensed and bonded in the State of Washington. The project approach, including positioning of the new monitoring wells, is discussed in the Section 6 of the RIWP. The subsections below outline the procedures for well abandonment, soil sampling, well installation, well development, and groundwater sampling. Sample handling and documentation are described in Section 2.7, IDW management is described in Section 2.8, and equipment decontamination is described in Section 2.9.

### **2.4.1 Well Abandonment and Repair**

Monitoring well MW-5 in the Sawmill is damaged beyond repair and will be abandoned and replaced during Event 1 with a new monitoring well (MW-5R). The monitoring well monument for MW-6R is damaged and will be repaired. Construction details for monitoring wells MW-5 and MW-6R are presented in Table 4 of the RIWP.

Before abandonment, the monitoring well monument will be removed and manual excavation will be performed to locate the well casing. If the total depth of the well casing can be measured, then the borehole can be abandoned by grouting in place. If the damage is severe and the casing is not accessible to the total depth indicated on the well log, then the borehole will be overdrilled using a hollow stem auger (HSA) drill rig to remove annular sealing material and the well screen filter pack material. The borehole will be backfilled with grout, placed from the bottom up using a tremie pipe. The total volume of grout used in the borehole will be documented. The driller will ensure the abandonment and grout seal conforms to the requirements of WAC 173-160 and other applicable regulations and guidance.

The steel monument and well casing at MW-6R are damaged. The current steel monument will be removed and replaced with a heavy-traffic rated monument during Event 1. The well casing, although bent, is still functional.

IDW generated during well abandonment activities will be contained in U.S. Department of Transportation (DOT)-approved 55-gallon drums, labeled as non-hazardous waste, stored onsite in a secure location, and managed as described in Section 2.8. An inventory of IDW will be maintained.

## 2.4.2 Well Drilling

Seven monitoring wells will be installed in the Log Yard and one replacement well will be installed in the Sawmill (Figure 13 of the RIWP). The coordinates for each proposed monitoring well are listed in Table A-2. Known storm water and sewer utility features are shown in Figure 4 of the RIWP. Before work begins, GSI will ensure that both private and public utility surveys have been completed, including providing the driller with the locate ticket number from the Washington Utilities Underground Location Center (UULC) (Call Before You Dig, 1-800-424-5555 [or 811]).

Before commencing drilling, water levels in nearby monitoring wells will be measured to assist in estimating the anticipated depth to water (DTW) in each boring. The monitoring well borings will be advanced using a Geoprobe rig with direct push and HSA capabilities. Continuous soil cores will be collected during drilling using a 1.5-inch to 3.0-inch inner diameter, 5-foot-long direct push sampler with acrylic liner (or an equivalent continuous core method).

Monitoring well borings will be advanced to a total depth of approximately 20 feet below ground surface (bgs) or approximately 6 to 7 feet below the observed DTW in the boring. Soil cores will be sampled and logged during drilling, as discussed in Sections 2.4.2.1 through 2.4.1.3. As described in Section 2.4.3, monitoring well screen depths will be placed approximately 4 feet above and 6 feet below the observed water level at the time of drilling (ATD).

Once the soil samples have been collected from the soil cores and the total depth of the well has been determined, the driller will complete the well using HSA (see Section 2.4.3).

Drilling equipment (e.g., augers, samplers) will be steam cleaned prior to use onsite, between each boring location, and before leaving the Site. Decontamination fluids generated during steam cleaning of the drill rig and drilling equipment be captured in a decontamination pad and pumped and contained. All non-dedicated equipment will be decontaminated per Section 2.9. An inventory of IDW will be maintained.

Soil cuttings and decontamination fluids generated during the well installations will be stored in DOT-approved 55-gallon drums, stored onsite in a secure location, labeled, and managed as described in Section 2.8. Soil and liquid IDW will be contained in separate drums.

### 2.4.2.1 Soil Sample Intervals

Conceptual soil sampling intervals and anticipated geologic units to be encountered during drilling are shown in Figure A-1. Detailed observations and measurements will be made during borehole logging and used in determining the appropriate soil sampling intervals and monitoring well design (e.g., total depth, screened interval). Prior to starting drilling, water levels will be measured in the nearest existing monitoring well(s) to help define the anticipated depth that water will be encountered in each boring. This information will be used to plan soil core sample drive depths and anticipated soil sample depths.

Continuous soil cores will be collected during drilling using a 1.5-inch to 3.0-inch inner-diameter, 5-foot-long direct push sampler with acrylic liner (or an equivalent continuous core method). After driving each core and before opening the acrylic liner to log the soil, GSI's field staff will identify the soil samples to be collected for analyses or archiving. Soil core samples (~1 foot in length) will be collected for potential analytical laboratory testing on approximately 3-foot centers, as shown in Figure A-1. Target soil sample depth intervals are described below and are shown in Figure A-1.

### ***Uncapped Area Soil Intervals***

Continuous soil samples in the uncapped Log Yard (i.e., creek bank) and Sawmill (replacement well MW-5R) will be advanced starting at a depth of approximately 6 to 12 inches bgs (below asphalt, surface soil, grass, etc.) to a total depth of approximately 20 feet or approximately 6 to 7 feet below the water table ATD. Soil borings are anticipated to encounter hydraulic fill and alluvium described by others as silty sand, silt, and sand units. Soil core samples (~1 foot in length) will be collected for potential analytical laboratory testing on approximately 3-foot centers, as shown in Figure A-1. The following bullets summarize the anticipated sampling intervals and samples to be collected. It should be noted that actual sample depths and total boring depths will be determined in the field, based on observations in boring location (DTW ATD, soil types, stratigraphy, etc.).

- *Asphalt, Surface Soil, Grass (6 to 12 inches thick)*: Removed; no sample collected.
- *Hydraulic Fill/Alluvium (described by others as silty sand, silt, and sand units)*: Soil core samples (approximately 1 foot in length) will be collected for potential analytical laboratory testing (Table A-3) on approximately 3-foot centers (Figure A-1).
  - Sample 1 – approximately 1 to 2 feet bgs. Sample will be archived.
  - Sample 2 – approximately 4 to 5 feet bgs. Sample will be archived.
  - Sample 3 – approximately 7 to 8 feet bgs. Sample will be archived.
  - Sample 4 – approximately 1 to 2 feet above the estimated water level in the borehole. Sample will be archived.
  - Sample 5 – approximately 1 to 2 feet below the water level observed ATD in the borehole. Sample will be submitted for analytical testing (see Table A-3).
  - Sample 6 – approximately 4 to 5 feet below the water level observed ATD in the borehole. Sample will be archived.

### ***Capped Area Soil Intervals***

The Log Yard was capped in the late 1980s to eliminate infiltration into the fill containing slag. The fill containing slag is now overlain by gravel base course and the roller-compacted concrete (RCC) cap and asphalt overlay and the thicknesses of these units varies across the Log Yard. The average thickness of each unit in the capped area is described below. Soil core samples (~1 foot in length) will be collected for potential analytical laboratory testing on approximately 2- to 3-foot centers, as shown in Figure A-1. The following bullets summarize the anticipated sampling intervals and samples to be collected. It should be noted that actual sample depths and total boring depths will be determined in the field, based on observations in boring location (DTW ATD, soil types, stratigraphy, etc.).

- *RCC cap and Asphalt Overlay (approximately 15 inches thick combined)*: Concrete coring; no sample collected.
- *Gravel Base Course (approximately 26 inches thick)*: Vacuum extraction; no sample collected. The soil sampler should start being advanced at the bottom of the gravel layer.
- *Fill Containing Slag (approximately 38 inches thick)*: Soil logging only; no sample collected.
- *Hydraulic Fill/Alluvium (previously described by others as silty sand, silt, and sand units)*: Continuous soil cores will be advanced to a total depth of approximately 20 feet or

approximately 6 to 7 feet below the water table ATD. Soil core samples (approximately 1 foot in length) will be collected for archival or analytical testing (Table A-3).

- Sample 1 – approximately 2 to 3 feet below the bottom of the fill containing slag unit. Sample will be archived.
- Sample 2 – approximately 1 to 2 feet above the estimated DTW in the borehole. Sample will be archived.
- Sample 3 – approximately 1 to 2 feet below the water level observed in the borehole ATD. Sample will be submitted for analytical testing (Table A-3).
- Sample 4 – approximately 4 to 5 feet below the water level observed in the borehole ATD. Sample will be archived.

#### 2.4.2.2 Anoxic Soil Sample Procedure

Once the sample intervals have been identified, as described in Section 2.4.2.1, GSI's field staff will collect the soil sample using the following anoxic procedure to minimize the potential of oxidizing the sample to the extent practicable:

1. Cut the soil sample length (e.g., 12 inches) from the acrylic core. Cap both ends of the sample core.
2. Place the sample core in a Mylar bag. Add oxygen-absorbing packets to the Mylar bag and manually express as much air as possible from the bag.
3. Purge the bag with nitrogen or argon gas.
4. Seal bag with a portable heat sealer and label the bag (see Section 2.7.4 for labeling details).
5. Place the Mylar bagged core in a re-sealable plastic bag. Manually remove air from the bag and seal.
6. Place the sample in a cooler with ice or dry ice and transport sample to analytical laboratory in accordance with Sections 2.7.3 and 3.4.

Note that the capped sections of the cores that are submitted to the laboratory will not be directly logged, but any changes in lithology noted along the cut edges of the core tubes or through the clear plastic core tube liners, will be noted on the soil boring log (Section 2.4.2.3).

#### 2.4.2.3 Soil Logging

Soil cores will be examined and classified in the field based on American Society for Testing and Materials (ASTM) D2488 – Standard Practice for Description and Identification of Soils (Visual/Manual Procedure) (ASTM, 2000). The soil descriptions on the boring logs will include, but is not limited to, soil classification (e.g., gravel, sand, silt, clay) and physical characteristics (e.g., density, color, moisture, plasticity, coarseness). The presence of odor, sheen, and synthetic material also will be noted. Additionally, observations made by the driller will be recorded including refusal, heaving sand, and rig behavior (e.g., drill casing sinking, rig bouncing on gravels or cobbles). Soil logging will be performed by a field hydrogeologist, engineer, or environmental scientist working under the supervision of a Geologist licensed in the State of Washington.



### 2.4.3 Well Installations

Seven new monitoring wells will be installed at the approximate locations shown in Figure 13 of the RIWP. Proposed monitoring well locations are presented in Table A-2. The proposed wells are intended to monitor the top of the unconfined water-bearing zone. The conceptual monitoring well design is shown in Figure A-2.

Each groundwater monitoring well will be installed in accordance with Chapter 173-160 of WAC, *Minimum Standards for Construction and Maintenance of Water Wells*, and Chapter 173-162 WAC, *Regulation and Licensing of Well Contractors and Operators* and applicable guidance by a Washington licensed and bonded driller. Drilling and well installation activities will be documented by a field hydrogeologist, engineer, or environmental scientist working under the supervision of a Geologist licensed in the State of Washington.

Borings for monitoring well completion will be advanced using an HSA drill rig after completion of the direct push soil boring advanced to collect soils cores for logging and soil sample collection (as described in Section 2.4.2). The total depth of each well and the target screened will be determined in the field, based on the drilling log and discussions with the supervising geologist. The well screen will be positioned across the water table with the screen depth based on field observations of stratigraphy and moisture during the drilling. In general, the well screen will be targeted to extend approximately 4 feet above the observed water table.

Prior to advancing the HSA to install the monitoring well, a wooden plug will be placed in the lead auger. The HSA will then be advanced to total depth and the plug knocked out. A 2-inch-diameter groundwater monitoring well will be installed in each boring during the process of removing the HSA auger casing. The monitoring wells will be constructed of 2-inch-diameter Schedule 40, flush-threaded polyvinyl chloride (PVC) pipe with 10 feet of 0.010-inch milled slot screen. The top of the screen will be placed approximately 4 feet above the groundwater surface to account for seasonal and tidal groundwater fluctuations. A blank riser pipe attached to the top of the screen will extend to approximately ground surface. Well screen, casing, and caps will be pre-cleaned by the manufacturer and shipped in plastic. A 10-20 graded Colorado silica sand pack (or equivalent) will be installed within the annular space from the bottom of the screen to approximately 2 feet above the top of the screen. During well construction, the sand pack will be poured slowly through the HSA as the auger are extracted to minimize any possibility of bridging. The well screen will be surged gently with a bailer during installation of the sand pack to reduce the potential for bridging and ensure a uniform distribution of the sand around the screen. The annular space above the sand pack will be sealed with bentonite chips to 2 feet bgs, followed by a high early strength concrete seal, which will extend to the ground surface. The monitoring wells will be completed with a heavy-traffic-rated flush-mount monument set in concrete.

Upon completion, all wells will be surveyed by a Washington licensed surveyor to the mean low low water (MLLW) datum. Each horizontal well location will be surveyed to the nearest 1 foot and the top of the well casing and ground surface elevations will be surveyed to the nearest 0.01 foot vertically.

### 2.4.4 Well Development

The objective of the well development is to remove fine-grained material from the filter pack and borehole wall thereby improving the hydraulic connection between the well and the aquifer. Monitoring wells will be developed using a combination of surging, bailing, or other methods approved by the supervising geologist.

During Event 1, both existing and new monitoring wells, will be developed. Typical well development steps are:

1. Upon removing the cap on the well casing, measure the percent methane present in the head space at the top of the well casing using a portable methane meter (i.e., GEM 2000). Measure and record the static water level in the well to the nearest 0.01 foot.
2. Surge, bail, brush (as needed on existing wells), and pump the well. Record temperature, pH, dissolved oxygen (DO), oxidation-reduction potential (ORP), specific conductance (SC), and turbidity of the purged groundwater on a well development field form at regular intervals. Water level measurements and flow rates will also be recorded at periodic intervals.
3. Continue development until groundwater turbidity is approximately 10 nephelometric units (NTU) or less and groundwater parameters have stabilized. If turbidity and parameter stabilization goals cannot be achieved, continue development until a minimum of three well casing volumes have been removed or the well goes dry.
4. Purged groundwater will be stored in DOT-approved 55-gallon drums, stored onsite in a secure location, and managed as described in Section 2.8. Drums labels will clearly identify whether the drum contains water or soil and identify the approximate level of the material in the drum.
5. Well development equipment will be decontaminated between wells following the procedures described in Section 2.9.

Existing wells HC-1 and HC-2 are shallow and not anticipated to have sufficient water production to allow sampling. These wells are expected to pump dry during well development. If the well is purged dry and the water level does not recover to sufficiently fill the required sample bottles within 24 hours, then the well will be deemed “not enough water to sample” and no sample will be collected.

#### 2.4.5 Groundwater Elevation Monitoring

Groundwater levels will be monitored to evaluate the seasonal and tidal fluctuations at the Site and to obtain a better understanding of groundwater flow directions and gradients at the Site. This information will be useful in refining the conceptual site model and assessing groundwater/surface water interconnections.

Groundwater levels will be measured manually during each sampling event. A round of water levels will be measured as quickly as possible on the same day, starting at a nearshore well, such as MW-7, and making a loop around the Site, and ending with a re-measurement of the nearshore starting well.

At each well, the cap will be removed and the percent methane will be measured in the head space at the top of the well casing. The wells will be allowed to equilibrate with atmospheric pressure, and the water level will be measured from the surveyed measurement mark on the north side of the top of casing using an electronic water level meter to the nearest 0.01 foot.

Electronic water level meter will be decontaminated between each well per Section 2.9.

#### 2.4.6 Groundwater Sampling Procedures

Groundwater samples will be collected at 19 monitoring wells: 12 monitoring wells in the Log Yard and 7 monitoring wells in the Sawmill (Figure A-1). Groundwater samples initially will be collected

following well installation and development (Event 1). Future groundwater samples will be collected at monitoring wells on a quarterly basis for 1 year (Events 2 through 4). The collection of groundwater samples from Site monitoring wells generally will consist of three steps:

1. Measurement of the percent methane in well head space and static water level (Section 2.4.6)
2. Well purging and monitoring for field parameter stabilization
3. Analytical sample collection

In general, groundwater sampling will proceed across the Site from the southeast to northwest based on a desire to move from lower to higher concentration regimes. The sampling order in subsequent sampling events may be revised on the basis of the analytical results obtained in Event 1.

Equipment used for groundwater sampling will consist of a peristaltic pump, well-dedicated high-density polyethylene (HDPE) purge tubing, and a flow-through cell with field water quality parameter sensors (i.e., YSI 556 Multiparameter Instrument). During sampling activities, the field staff will attempt to minimize introduction of air to the monitoring well water column (i.e., slowly lowering sampling equipment into well), water purged from the well, and collected groundwater samples. The goal of the sampling activities is to prevent field induced changes in the groundwater chemistry (i.e., oxidation). Groundwater purging and parameter measurement techniques to be used are:

1. Calibrate field meters daily according to factory instructions and record results in instrument calibration logs.
2. Open well cap and measure the percent methane in the head space using a methane meter (per Section 2.4.6). Measure water depth to the nearest 0.01 foot using an electronic water level meter (per Section 2.4.6). Record the percent methane and DTW measurements and the time of measurement on the groundwater sampling form.
3. Insert purge tubing in the well. Connect purge tubing to the pump and begin purging water into a bucket until the initial high turbidity slug of water passes.
4. Connect tubing to the flow-through cell and begin purging, typically at a rate of approximately 250 milliliters per minute, but no more than 1 liter per minute. Record the purge rate and changes to the purge rate.
5. Field parameters will be measured using a flow-through cell equipped with quality parameter sensors (i.e., YSI 556 YSI meter). Monitor and record pH, temperature, conductivity, ORP, DO, and turbidity and record readings at regular intervals (e.g., 2-liter purge interval or 3 minutes).
6. Measure and record DTW during sampling activities and after sampling is complete.
7. Purging will be considered complete only after one of the following purge conditions is met:
  - Low-flow sampling: parameters have stabilized (Table A-4) and water level drawdown is controlled in accordance with EPA low-flow purging and sampling procedures (EPA, 1996, 2010a).
  - Other sampling methods, if low-flow sampling cannot be achieved:

- A minimum of three well volumes have been removed and successive field parameter measurements agree with the stability criteria presented in Table A-4. Water level drawdown cannot be controlled.
  - At least five well volumes have been removed, although field parameter stabilization criteria cannot be attained.
  - The well has been pumped dry and allowed to recover sufficiently such that adequate sample volumes can be collected within 24 hours of the initial well purging.
8. Record the final groundwater parameters before beginning sample collection. Parameter stabilization should be based on three consecutive measurements taken 3 to 5 minutes apart.
  9. Disconnect purge tubing from flow-through cell. Fill laboratory prepared bottles directly from purge tubing, as outlined in the groundwater analytical summary (Table A-5). All bottles will be filled according to laboratory and sample method instructions (Table A-12). Samples will be placed in an iced cooler after collection.
  10. Purge water will be stored in DOT-approved 55-gallon drums, labeled, stored onsite in a secure location, and managed as described in Section 2.8.

Purge tubing used during groundwater sampling will be dedicated to a single monitoring well and placed in a sealed zip-lock bag and labeled with the well ID for reuse during subsequent sampling events. All non-dedicated equipment will be decontaminated per Section 2.9.

## **2.5 Temporary Borings and Test Pits**

Temporary borings and test pits will be used to characterize Site geology and to collect additional information on soil and groundwater contaminants at the Site. Samples from the proposed temporary borings will provide additional data on arsenic concentrations in groundwater and saturated soil in the Log Yard under the cap. Samples from the proposed test pits will provide additional data to characterize soil near the former dip tank in the Sawmill area and identify the edge of previous cleanup excavation work. The project approach, including positioning of the temporary borings and test pits, is discussed in the Sections 5 and 6 of the RIWP. Sample handling and documentation are described in Section 2.7, IDW management is described in Section 2.8, and equipment decontamination is described in Section 2.9.

Known storm water and sewer utility features at the Site are provided in Figure 4 of the RIWP. Before work begins, private utility locates will be completed and GSI will provide the drilling contractor with the locate ticket number from the Washington Utilities Underground Location Center (UULC) Utility Notification Center (Call Before You Dig, 1-800-424-5555 [or 811]).

### **2.5.1 Temporary Borings**

Of the nine temporary borings, six of the boreholes are in the Log Yard, two boreholes are located north of the site boundary, and one borehole is located in a former drainage ditch (Figure A-1 and Table A-6). Before drilling, water levels will be measured in nearby monitoring wells to help predict the depth that water will be encountered in each boring. The borings will extend to approximately 5 to 6 feet below the DTW measured in the borehole to a total anticipated depth of approximately 13 to 20 feet bgs.

Continuous soil cores will be advanced using a Geoprobe drilling rig equipped with a 1.5-inch to 3-inch inner diameter, 5-foot-long direct push sampler with acrylic liner (or an equivalent continuous

core method). Soil cores will be sampled and logged during drilling, as discussed in Sections 2.4.2.1 through 2.4.1.3 and shown in Figure A-1. The targeted sampling depths are different for shallow soil boring TB-9, which is located within the former channel of Wapato Creek and the central drainage ditch (Figure 13 of the RIWP). Soil from TB-9 will be logged to document depth and type of fill and the depth of former drainage channel and/or Wapato Creek beds. Soil samples from TB-9 will be collected from the fill, the base of the former channel, and the native sediments for laboratory analyses (Table A-3).

Upon reaching total depth of the borehole (approximately 5 to 6 feet below the groundwater level), the driller will install a temporary monitoring well using a dedicating screen. HDPE purge tubing will be placed in the temporary monitoring well, which will be connecting to a peristaltic pump and a flow-through cell with field water quality parameter sensors (i.e., YSI 556). The temporary monitoring well will be developed to reduce turbidity and ensure that a representative groundwater sample is collected. Groundwater samples from the temporary wells are still likely to have some turbidity. The duration of the development will be determined by GSI's field staff examining the development trends and the site specific soil conditions. Field parameter measurements of the development water and water level measurements will be collected at regular intervals during development to assess borehole development progress.

Purge rates will be kept low during development to minimize turbidity (at an approximate rate of 250 ml/min, but no more than 1 liter per minute). The field staff will consult with the FD to determine if a sample needs to be collected prior to field parameter stabilization or complete clearing of the well if water production is limited. A groundwater sample will be collected per Section 2.4.7 into laboratory prepared bottles, as outlined in the temporary boring analytical summary (Tables A-5 and A-12). All samples will be placed in iced coolers after collection.

Drilling equipment (e.g., drill rod, samplers) will be steam cleaned prior to use onsite, between each boring location, and before leaving the Site. Decontamination fluids generated during steam cleaning of the drill rig and drilling equipment be captured in a decontamination pad and pumped and contained. All non-dedicated equipment will be decontaminated per Section 2.9. An inventory of IDW will be maintained.

Soil cuttings and purged groundwater will be stored in DOT-approved 55-gallon drums, stored onsite in a secure location, and managed as described in Section 2.8. All non-dedicated equipment will be decontaminated per Section 2.9.

## 2.5.2 Test Pits

Two test pits will be excavated and sampled in the Sawmill, adjacent to the former dip tank (Figure 13 of the RIWP and Table A-6), to approximately 5 to 10 feet bgs. Backhoe excavation of the test pits will proceed as follows:

1. Remove gravel and vegetation, if present, to provide access to the surface soil and to identify the edge of the former dip tank cleanup area (i.e., excavation).
2. Position the test pits, to the extent practicable, to expose soil outside the area of previous excavation (approximately 3 to 5 feet from the previous excavation wall).
3. Excavate soil from test pit in lifts of approximately 6 to 8 inches deep.
4. Log the soil as outlined in Section 2.4.2.3.

5. Collect two soil samples from each test pit:
  - a. The first soil sample will be collected to representative surface soil below the gravel layer (approximately 0.5 to 1.5 feet bgs). This sample will be collected manually using stainless-steel spoons.
  - b. The second soil sample will be collected from the backhoe bucket from a depth representing approximately 1 to 2 feet below the observed water level in the pit, or a maximum depth of 9 to 10 feet bgs.
  - c. Each sample will be homogenized using stainless-steel spoons and bowls and placed into laboratory prepared containers. Each sample will be analyzed for the constituents listed in Table A-3. All samples will be placed in an iced cooler after collection.
6. Excavated soil will be placed back into the test pits and compacted to restore surface conditions.

All non-dedicated sampling equipment will be decontaminated per Section 2.9.

## 2.6 Nearshore Study Area

To better understand the relationship between groundwater and Wapato Creek, four sampling transects have been established as shown in Figure 13 of the RIWP. As discussed in the RIWP, these transects will provide data to assess the groundwater migration pathway from the upland site (Log Yard, Sawmill) to Wapato Creek (i.e., groundwater, porewater, surface water). The nearshore study area is located along the western boundary of the Site, beginning in Wapato Creek (i.e., porewater and surface water) and extending approximately 300 feet to the east into the Log Yard and Sawmill (i.e., groundwater). Samples collected during Event 1 will provide comprehensive groundwater, porewater, surface water, sediment, and soil chemistry data across the Site and within Wapato Creek. These data will be used to supplement existing Site information and evaluate arsenic fate and transport mechanisms.

Additionally, a bank reconnaissance and short-term tidal study (Section 2.6.5) will be completed to refine the conceptual site model. The project approach for the nearshore study area, including the positioning of transects, is discussed in the Sections 5 and 6 of the RIWP. Sample handling and documentation are described in Section 2.7, IDW management is described in Section 2.8, and equipment decontamination is described in Section 2.9.

### 2.6.1 Porewater Sampling

Each transect consists of two porewater locations, collocated with sediment samples, and each porewater location consists of two sample depths (zero to 10 centimeters [cm] below mudline [bml] and 40 to 50 cm bml) (Figure 14 of the RIWP and Table A-7). Thus, four porewater samples will be collected along each transect.

Porewater samples will be collected using a nylon-screen diffusion sampler (NSDS). The NSDS consists of a polyethylene jar with a threaded rim, a 120-micron nylon screen mesh (or finer), and a threaded jar ring; the mesh is placed over the mouth of the jar and secured by the ring. The NSDS will be filled with deoxygenated deionized water, buried in the sediment, allowed to equilibrate for approximately 2 weeks. During sampling activities, the field staff will attempt to minimize introduction of air to the porewater samples. The goal of the sampling activities is to prevent field induced changes in the porewater chemistry (i.e., oxidation). Porewater samplers will be deployed

and collected from upstream (i.e., Sawmill) to downstream. The installation of the NSDS in each transect is as follows:

1. Prepare appropriate number of NSDSs prior to sampling: Use laboratory provided or decontaminated sample jars and open top caps (e.g., jar rings), and assemble NSDS with deoxygenated, deionized water for each sample location (designated as Location A and Location B) and both sample depths (zero to 10 cm bml and 40 to 50 cm bml) at each location. Multiple NSDS jars may be needed to provide the required volume per porewater analytical sample listed in Table A-5. Each NSDS jar will be labeled with the sample ID (see Section 2.7.4 for more details).
2. Locate porewater samples: Location A samples. Location A samples will be placed at the edge of Wapato Creek at an elevation approximately 8 to 9 feet MLLW (between approximate high tide and low tide). Locations may be moved based on field conditions (e.g., boulders, gravel, and creek bed topography).
3. Deploy the deep NSDS (40 to 50 cm bml) first. To reach the proper depth, remove one shovel of sediment (i.e., to 30 cm bml). Then use the shovel to displace the sediment and place the NSDS jar within the deep depth range (40 to 50 cm bml). Place the jar sideways with the mesh facing east towards the Site. After sampler deployment, remove the shovel to allow for sediment to cover the NSDS jar. If multiple NSDS jars are necessary for the 40 to 50 cm bml depth, place NSDS jars next to one another and perpendicular to the creek with the opening facing the Site. Replace surface sediment to fill the hole up to mudline. Place a flag or stake to mark the location of the samples. Avoid stepping on or near the deployed samplers.
4. Next, deploy the shallow NSDS (zero to 10 cm bml) within a couple feet slightly upstream from the deep NSDS (40 to 50 cm bml). Insert a shovel to displace the sediment and place NSDS so the jar is within the lower portion of the shallow depth range (zero to 10 cm bml). Similar to the deep sample, the jar should be placed sideways so the mesh is facing the Site. After deployment, remove the shovel to allow for sediment to cover the NSDS jar. If multiple NSDS jars are necessary for the zero to 10 cm bml depth, place NSDS jars next to one another and perpendicular to the creek with the opening facing east towards the Site. Make sure each NSDS jar is covered with sediment after deployment. Place a flag or stake to mark the location of the samples.
5. Locate the porewater: Location B samples. Location B samples will be placed at the approximate break in slope (see Figure 14 of the RIWP) or approximately midpoint between Location A and the deepest location in Wapato Creek, based on field conditions.
6. Redo step 3 to deploy the NSDS jar(s) at the deeper depth (40 to 50 cm bml).
7. Redo step 4 to deploy the NSDS jar(s) at the shallower depth (zero to 10 cm bml).
8. Leave samplers to equilibrate in place for approximately 2 weeks.
9. Retrieve the NSDS jars from shallow depth (zero to 10 cm bml) at Location A. Extract sample from NSDS jars using a peristaltic pump or disposable syringe and hypodermic needle (or equivalent). Porewater sample will be transferred directly into laboratory-prepared containers. Each sample will be analyzed for the constituents listed in Table A-5 for porewater samples. All bottles will be filled according to laboratory and sample method

instructions. Samples will be placed on ice in a cooler after collection. Field parameters will be collected by removing the nylon mesh from a NSDS and inserting a water quality parameter sensor (i.e., YSI 556 Multiparameter Instrument).

10. Retrieve the NSDS jars from the deeper depth (40 to 50 cm bml) at Location A. Extract sample from NSDS jars using a peristaltic pump or disposable syringe and hypodermic needle (or comparable). Porewater sample will be placed into laboratory-prepared containers. Each sample will be analyzed for the constituents listed in Table A-5 for porewater samples. All bottles will be filled according to laboratory and sample method instructions (Table A-12). Samples will be placed on ice in a cooler after collection. Field parameters will be collected by removing the nylon mesh from a NSDS and inserting a water quality parameter sensor (i.e., YSI 556 Multiparameter Instrument).

All non-dedicated sampling equipment will be decontaminated (see Section 2.9). When porewater samples are replicated in subsequent sampling events, the field staff will slightly move the sample locations so the NSDS jars are not deployed in disturbed sediment.

### 2.6.2 Sediment Sampling

As stated in Section 2.6.1, sediment samples are collocated with porewater samples. Each sediment location consists of two sample depths (zero to 10 cm bml and 40 to 50 cm bml) (Figure 14 of the RIWP and Table A-7). Therefore, four sediment samples will be collected per transect.

The sediment sample will be collected prior to the installation of the collocated porewater samples. The sediment sample will be collected immediately downstream of the collocated NSDS jars. The field staff will take care to not disturb the sediments where the NSDS jars will be deployed while collecting the sediment sample. Sediment samples will be collected from upstream to downstream, to the extent practicable.

Sediment samples will be collected using a sampling device, such as a core-shaped push tubes (e.g., stainless-steel tube, PVC tube). Sampling device will either have an acrylic liner or will be extruded into a stainless-steel tray. The zero to 10 and 40 to 50 cm bml intervals from the sampling device will be preserved in following the anoxic procedure described in Section 2.4.2.2. Each sample will be analyzed for the constituents listed in Table A-3 for sediment. Excess sediment from sampling device will be placed back into the hole.

All non-dedicated sampling equipment will be decontaminated per Section 2.9.

### 2.6.3 Surface Water Sampling

A total of 6 surface water samples will be collected during Event 1 (Figure 13 of the RIWP and Table A-8). Sampling locations for Events 2 through 4 will be based on Event 1 results. One surface water sample will be collected near Location B on each of the four transects. Additionally, upstream and downstream surface water samples will be collected. Surface water samples in Wapato Creek will be collected during low tide conditions (i.e., within approximately 1 hour of the low tide) and approximately 10 cm above mudline. The downstream sample will be collected in Blair Waterway from a depth of approximately 2 to 3 feet below the water surface. Surface water samples will be collected immediately before the NSDS jars are retrieved. Surface water samples will be collected from downstream to upstream. Techniques to be used to collect surface water are:

1. Calibrate field meters daily according to factory instructions, with calibration results recorded on calibration forms.



2. Set up peristaltic pump and HDPE sample tubing. Affix the sample tubing approximately 10 cm above a stake marking the NSDS jar or separate rod.
3. Connect other end of sample tubing to a flow-through cell. Monitor pH, temperature, SC, ORP, and DO. Record field parameters until stabilization (Table A-4).
4. Disconnect sample tubing from flow-through cell. Fill laboratory prepared bottles directly from tubing, as outlined in the surface water analytical summary (Table A-5 and Table A-12). All bottles will be filled according to laboratory and sample method instructions. Samples will be placed on ice in a cooler after collection.

Sample tubing will be discarded after each use. All non-dedicated equipment will be decontaminated per Section 2.9.

#### **2.6.4 Bank Reconnaissance**

The field staff will explore and document the bank adjacent to the Site along Wapato Creek. It is important to conduct this reconnaissance during low tide for the full extent of the bank to be exposed. The following is a list that the field staff will identify, if present:

- Dry weather flow from outfalls
- Groundwater seeps
- Sediment with any odor, discoloration or sheen
- Rills, channels, etc. (evidence of preferential flow or erosion)
- Animal tracks, burrows, nesting areas, etc.
- Benthic communities (clam tubes, etc.)

When any of the above is identified, the field staff will describe it in the field logbook, record global positioning system (GPS) coordinates and/or a description of the feature location, and take photographs.

#### **2.6.5 Short-Term Tidal Study**

Continuous groundwater levels, surface water levels (Wapato Creek), temperature, and conductivity data will be collected from nearshore monitoring wells and a monitoring station installed in Wapato Creek to better understand the tidal fluctuations and relationship of Wapato Creek and groundwater at the Site. Transducers will be programmed to collect data every 5 minutes for a period of at least 73 hours. This information also will be useful in refining the conceptual site model and assessing groundwater-surface water interactions.

##### **2.6.5.1 Wapato Creek Stage Monitoring**

Continuous surface water levels, temperature, and conductivity data will be collected in Wapato Creek. A stilling well will be installed in Wapato Creek, south of WCT-3 and north of the Site access road from Alexander Avenue (Figure A-1). A non-vented pressure transducer (e.g., CT2X) will be installed in the stilling well to monitor the creek's water level, temperature, and conductivity.

The stilling well and staff gauge will be surveyed by a licensed surveyor using an established datum (i.e., MLLW) to the nearest 1 foot horizontal and the nearest 0.01 foot vertical.

### 2.6.5.2 Continuous Groundwater Level and Conductivity Monitoring

Continuous groundwater level data will be monitored using transducers programed to collect data every 5 minutes for a period of at least 73 hours. The transducers will be installed in monitoring wells MW-7, MW-9, MW-10, MW-11, MW-12, MW-13, B-1R, and B-6R on the Log Yard and MW-1, MW-2R, MW-3, MW-4, and B-5R on the Sawmill (Table A-5). While all transducers will measure water levels, a subset of the monitoring wells closest to Wapato creek and along a single transect will be equipped with non-vented pressure transducers that also measure conductivity and temperature. An additional pressure transducer will be installed onsite to measure barometric pressure, which will be used to correct water level data for potential barometric changes.

Manual water level measurements will be collected (per Section 2.4.5.1) during deployment and retrieval to verify pressure transducers are operational, and conduct any necessary maintenance (i.e., conductivity pressure transducer calibration).

## 2.7 Sample Handling, Documentation, and Transport

Samples will be traceable from the time of collection through laboratory and data analysis. To ensure samples collected during the RI are traceable, the procedures described in this section will be followed.

### 2.7.1 Field Logbook and Forms

The field activities and observations will be noted in a field logbook or applicable field forms. The following site activity records will be documented in the field logbook:

- Time of arrival and departure from the Site
- Project personnel onsite
- Downtime or equipment breakage
- Sample information, including station ID, date/time of collection, type of sample, and description (only applicable when field form is not used)
- Names of visitors, their association, and purpose of visit
- Any changes that occur at the Site (e.g., personnel, responsibilities, deviations from the SAP) and the reasons for such changes

Field logbook entries will be written clearly with enough detail so that participants can reconstruct events later, if necessary. Field logbooks will be bound, with consecutively numbered pages, and removal of any pages is prohibited. Unbiased, accurate language will be used and entries will be made while activities are in progress or as soon afterward as possible. Field logbook corrections will be made by drawing a single line through the original entry allowing the original entry to be legible. Corrections will be initialed and the corrected entry will be written alongside the original. When field activities are complete, the field logbook will be retained in the project file at GSI's Portland, Oregon, office.

Field data forms (e.g., soil boring log, groundwater sampling form) will be completed for activities that are not described in the field logbook and kept in the project file at GSI's Portland, Oregon,

office. Depending on the activity, the type of field data form and the information recorded on it may vary. Sample field forms are provided in Attachment 1.

The FD is responsible for ensuring that the field logbook and all field data forms are completed and accurate.

### 2.7.2 Equipment and Supplies

Equipment and supplies will include sampling equipment, utensils, decontamination supplies, sample containers, coolers, field logbooks and forms, personal protective equipment (PPE), and personal gear. A comprehensive checklist of sampling equipment will be developed before implementation. Protective wear (e.g., hard hats, gloves), as required for the health and safety of field personnel, will be as specified in the HSP (Appendix B of the RIWP).

### 2.7.3 Sample Containers, Preservation, and Holding Times

Groundwater and surface water samples will be placed directly in the appropriate sample containers (Table A-12). Porewater will be transferred from the passive collection field sampling jars (i.e. NSDS) to the appropriate laboratory provided containers (see Section 2.6.1). Sample containers and preservatives, as well as coolers and packing material, will be supplied by the contract laboratory. Commercially available pre-cleaned jars will be used and the laboratory will maintain a record of certification from the suppliers. Sample containers will be labeled clearly at the time of sampling. Labels will include the project name, sample ID, sampler's initials, analysis to be performed, date, and time. The nomenclature used for designating field samples is described in Section 2.7.4.

Soil, sediment, and porewater samples will require additional handling and processing prior to being placed into the appropriate sample containers. Soil and sediment samples that will be analyzed for arsenic speciation, batch adsorption and sequential extraction testing, will be collected and managed in the field following the anoxic procedures described in Section 2.4.2.2. Those soil and sediment samples will be collected in food-grade Mylar™ bags and processed at Brooks Applied Laboratory prior to analyses (see Section 3.4). Soil and sediment samples collected for archival, will be sent to Test America for freezing.

### 2.7.4 Sample Identification and Labeling

During sample collection, a unique code will be assigned to each sample as part of the data record. Station IDs are listed in the Tables A-3 and A-5 for soil/sediment and water media, respectively. The ID code will indicate the sample type, sampling location, and level of duplication. The first component of the sample ID will contain an abbreviation for the sample type followed by the station ID or monitoring well number, with leading zeros used for stations for ease of data management and correct sorting. The following abbreviations for sample types are listed below. Additional codes may be adopted, if necessary, to reflect sampling needs.

- MWS = monitoring well boring soil sample
- TBS = temporary boring soil sample
- TPS = test pit soil sample
- WCTSD = Wapato Creek transect sediment sample
- MW, B, or HC = groundwater sample from monitoring well, exact abbreviation based on monitoring well (i.e., MW for monitoring well MW-1, B for monitoring well B-3R, HC for monitoring well HC-1)

- TBGW = temporary boring groundwater sample
- WCTPW = Wapato Creek transect porewater sample
- WCTSW = Wapato Creek transect surface water sample

The second component will be used to code the sample depth for soil and sediment sampling intervals. This code will include the start and end depth in feet with an underscore (“\_”) between them (e.g., ‘0\_2’ = a sample collected from zero to 2 feet).

For field duplicate samples, sequential numbers starting at 500 will be assigned and integrated with the station ID number of the original sample. For equipment rinsate blanks, sequential numbers starting at 900 will be assigned and integrated with the station ID number. The sample type code (e.g., TBS, WCTSD, or MW) will correspond to the sample type for which the field duplicate sample or equipment rinsate blank was collected. For quarterly groundwater, porewater, and surface water samples, an identifier designating each sampling event will be added (i.e., E1, E2, E3, or E4).

Examples of sample IDs are offered below:

- Monitoring Well Boring Soil Samples
  - MW009-13\_14: soil sample from 13 to 14 feet bgs at monitoring well MW-9.
  - MW509-13\_14: duplicate soil sample from 13 to 14 feet bgs at monitoring well MW-9.
  - MW909-13\_14: equipment rinsate blank sample during collection of surface soil sample at monitoring well MW-9, at 13 to 14 feet bgs.
- Groundwater Samples
  - TB003-E2: groundwater sample collected during the second event from temporary boring TB-3.
  - B001R-E2: groundwater sample collected during the second event from monitoring well B-1R.
  - MW509-E2: duplicate groundwater sample collected during the second event from monitoring well MW-9.

### 2.7.5 Chain-of-Custody Procedures

Samples are in custody if they are in the custodian’s view, stored in a secure place with restricted access, or placed in a container secured with custody seals. A COC record will be signed by each person who has custody of the samples and will accompany the samples at all times. Copies of the COC will be included in contract laboratory reports and attached to the RI Report.

The FD will be responsible for all sample tracking and COC procedures for samples collected in the field, and will be responsible for any final sample inventory and maintaining sample custody documentation. When transferring sample custody, the COC will be signed, dated, and the time of transfer will be noted on the form.

The original COC form will be transported with the samples to the selected contract laboratories. Upon receipt, the laboratory sample custodian will inventory the samples by comparing sample labels to those on the COC document. The custodian will enter the sample number into a laboratory

tracking system by project code and sample designation. The custodian will assign a unique laboratory number to each sample and will be responsible for distributing the samples to the appropriate analyst or for storing samples in an appropriate secure area.

The contract laboratories will maintain COC procedures internally and when samples are shipped to subcontracted laboratories or during shipment between laboratories.

### **2.7.6 Sample Packaging and Shipping**

The contract laboratory will supply sample coolers and packing materials for each sampling event. Upon completion of the final sample inventory, samples will be packed in a cooler. Glass jars will be packed to prevent breakage and separated in the shipping container by bubble wrap or other shock-absorbent material. Ice in sealed plastic bags will be placed in the cooler to maintain a temperature of approximately 4 degrees Celsius (°C). Alternatively, dry ice may be used to expedite cooling if recommended by the laboratory.

When the cooler is full, the COC form will be placed into a re-sealable bag and taped onto the inside lid of the cooler. A temperature blank will be added to each cooler. Coolers will be transported to the contract laboratory by lab courier or overnight shipping service. These packaging and shipping procedures are in accordance with DOT regulations as specified in 49 CFR 173.6 and 49 CFR 173.24.

## **2.8 Investigation Derived Waste Management**

### **2.8.1 Soil**

Soil samples from new monitoring wells and temporary borings will be collected, processed, and placed in labeled DOT-approved 55-gallon drums that specify the collection site (e.g., boring number). Drums will be stored on the Site pending receipt of analytical soil results. IDW will be presumptively labeled as non-hazardous waste based on historical sampling results and waste determinations. A final hazardous waste determination will be performed using the results of the Event 1 soil samples to evaluate the proper disposal method of drums. Representative samples will be collected, as needed, for approved disposal at a permitted landfill. After sample results are available, GSI will coordinate proper disposal. An inventory of stored IDW will be maintained.

### **2.8.2 Groundwater/Decontamination Fluids**

Groundwater and decontamination fluids produced during well development and sampling activities will be contained in DOT-approved 55-gallon drums stored onsite. Drums will be stored on the Site pending receipt of analytical groundwater results. IDW will be presumptively labeled as non-hazardous waste based on historical sampling results and waste determinations. A final hazardous waste determination will be performed using the available groundwater data to evaluate the proper disposal method of drums. Representative samples will be collected, as needed, for disposal at an approved facility. GSI will coordinate proper disposal. An inventory of stored IDW will be maintained.

### **2.8.3 Sediment**

The sediment sampling procedures selected for this study eliminate the collection of sample volume in excess of the amount that will be submitted to the contract laboratory for analysis and/or archival. Any excess sediment that is removed during sampling activities will be placed in a DOT-approved 55-gallon drum that and labeled to specify that the drum contains sediment from WCT-1 through WCT-4. Drums will be stored on the Site pending receipt of analytical results. IDW will be presumptively labeled as non-hazardous waste based on historical sampling results and waste

determinations. A final hazardous waste determination will be performed using the results of the Event 1 soil samples to evaluate the proper disposal method of drums. Representative samples will be collected, as needed, for approved disposal at a permitted landfill. After sample results are available, GSI will coordinate proper disposal. An inventory of stored IDW will be maintained.

#### **2.8.4 Other Waste (PPE, decontamination solutions)**

All disposable materials used in sample collection and processing, such as paper towels, aluminum foil, and gloves, will be placed in heavyweight garbage bags or other appropriate containers.

Disposable supplies will be placed in a normal refuse container for disposal at a solid waste landfill.

### **2.9 Equipment Decontamination Procedures**

Drilling equipment (e.g., augers, samplers) will be steam cleaned prior to use onsite, between each boring location, and before leaving the Site. Decontamination fluids generated during steam cleaning of the drill rig and drilling equipment be captured in a decontamination pad and pumped and contained.

Equipment that comes in direct contact with samples, such as NSDS jars, push tubes, scoops, spoons, and mixing bowls, will be decontaminated in the following manner at the beginning of the sampling event, between use at each station, and at the end of the sampling event:

- Wash with brush and Liquinox or other phosphate-free detergent.
- Double rinse with tap water.
- Rinse with deionized water.
- When dry, cover decontaminated equipment with aluminum foil for temporary storage and/or transport.

To minimize sample contamination, gloves will be replaced after handling each sample, as appropriate. Decontamination solutions containing Liquinox will be placed in DOT-approved 55-gallon drums stored onsite and disposed of per Section 2.8.

### 3 Quality Assurance Project Plan

This QAPP describes the plan and procedures in place to ensure the data collected during the remedial investigation are of the quality and type needed. This QAPP was developed in general accordance with the Ecology QAPP Guidance (Ecology, 2004).

#### 3.1 Project Organization and Responsibilities

This section describes the project team responsible for laboratory analysis, data validation, and data management. Table A-1 provides contact information for project personnel.

##### 3.1.1 Laboratory Services

**Test America.** Test America is located in Tacoma, Washington, is the primary contract laboratory and will perform analyses for the following analytes:

- Pentachlorophenol (PCP)
- Sulfide
- Major ions (calcium, magnesium, potassium, sodium, bromide, chloride, fluoride, ortho-phosphate, sulfate)
- Alkalinity (including total, carbonate, bicarbonate, and hydroxide alkalinity)
- Nitrate and Nitrite as N
- Organic carbon (total and dissolved)
- Metals (arsenic, iron, manganese)
- Dioxins/furans
- Grain-size
- pH (soil, sediment)

Christabel Escarez will serve as the Laboratory PM for Test America to oversee laboratory performance in accordance with this QAPP. Test America is accredited by the Washington State Department of Ecology.

**Brooks Applied Labs.** Brooks Applied Labs (Brooks) is located in Bothell, Washington, and will perform specialized analyses for the following data needs:

- Arsenic (total and dissolved arsenic in saline water)
- Arsenic (soil and sediment)
- Arsenic speciation (Arsenic III, Arsenic V, dimethylarsinic acid [DMA] and monomethylarsonic acid [MMA])
- Iron and Manganese (dissolved iron in saline water)
- Iron (soil and sediment)
- Iron speciation (iron II and iron III in dissolved in water samples only)
- Batch adsorption testing
- Sequential extraction testing

Elizabeth Madonick will serve as the Laboratory PM for Brooks to oversee laboratory performance in accordance with this QAPP. Brooks is accredited by the Washington State Department of Ecology.

Both laboratories and their respective PMs are responsible for the following:

- Assisting with selection of analytical methods that meet project needs
- Providing sampling containers and supplies
- Analyzing samples using methods selected for the project
- Carrying out appropriate QC procedures
- Documenting performance characteristics for methods use
- Providing information on how QC limits are set and how they are used for lab QC
- Reviewing data and verifying results
- Reporting results for samples and QC procedures
- Responding to questions regarding laboratory results during data validation process

A turn-around time of approximately 3 weeks is anticipated for all analyses from both laboratories.

### 3.1.2 Data Validation and Chemistry QA Manager

Cindy Ryals will serve as Chemical Quality Assurance (QA) Manager responsible for laboratory coordination and oversight in cooperation with the Senior PM, and will conduct the quality review of analytical data. The Chemistry QA Manager is generally responsible for the following:

- Make sure data package obtained from the laboratory is complete and provides the information needed to performed a QA and validation
- Perform quality review of data, and add qualifiers to the electronic data deliverable (EDDs) from the laboratory, as required during data review and validation
- Prepare a data validation summary, which will be included in the RI Report.

### 3.1.3 Senior Geochemist

Brad Bessinger (SSPA) will serve as the Senior Geochemist for the project, and will coordinate data use, data interpretation, and data needs for fate and transport modeling of Site-associated contaminants at the Site. The Senior Geochemist is generally responsible for the following:

- Ensure sampling and laboratory analyses meet data needs to perform fate and transport/geochemical modeling for the Site
- Advise on appropriate analytical methods to meet geochemical data quality objectives
- Assist in the development of specific procedures to be used for the batch adsorption and sequential extraction tests
- Perform geochemical modeling for the Site
- Confirm or revise existing conceptual site model for fate and transport of chemicals at the Site
- Oversee QA needs for modeling efforts and ensure a QA review is performed for the model

### 3.1.4 Data Manager

Cindy Ryals will serve as the Data Manger (DM) who will maintain the project database, and in cooperation with the PM will coordinate communications with the FD, SAC, Chemical QA Manager, and primary contract laboratories, as needed.



The Data Manager is generally responsible for the following:

- Tracking receipt of laboratory reports and EDDs
- Developing project database structure and integrity
- Managing receipt of data and data validation process
- Uploading data into project specific database
- Uploading data into the Washington Department of Ecology Environmental Information Management (EIM) database, as required by the Agency
- Performing or oversee data queries and reporting of data

### 3.2 Data Objectives

The overall quality objective for this investigation is to collect representative data of known, acceptable, and defensible quality that can be used to answer questions for the Site related to: the fate and transport of chemicals (indicator hazardous substances); the nature and extent of contamination; and potential risks to human health and the environment.

Specific quality objectives include Decision Quality Objectives (DQOs) and Measurement Quality Objectives (MQOs). The decision that the data need to support is determining whether Site concentrations meet the preliminary screening levels under MTCA for soil, sediment, groundwater, surface water, and porewater. Therefore, a sampling program of adequate spatial density and frequency has been developed to meet this DQO, as described in the SAP, and summarized in Tables A-6 through A-8.

As stated in the QAPP guidance (Ecology, 2004), *MQOs specify how good the data must be in order to meet the objectives of the project, and are based primarily on precision, sensitivity, and bias*. Each of these factors is defined and discussed briefly below.

- **Precision.** Precision is *a measure of the variability in the results of replicate measurements due to random error* (Ecology, 2004). Random error can occur as a result of both field and laboratory procedures, and is measured by a series of replicates (i.e., duplicates) collected and analyzed in both the field and laboratory, as discussed in Section 3.4. Field duplicates that will be collected to measure precision in sampling procedures are presented in Tables A-3 and A-4 and discussed in Section 3.4.2. Laboratory replicates used in analytical methods include standard QC spikes and replicates, and are discussed in Section 3.4.3.

Field precision will be assessed by collecting at least one duplicate sample for every twenty field samples (i.e., 5 percent) of each matrix (i.e., water or solids). Field precision is determined by the relative percent difference (RPD) between a sample and its duplicate. However, results from the analysis of a duplicate sample also test laboratory precision. Therefore, the RPD between the sample and the field replicate provides an indication of both the field and laboratory precision. The tolerance limit for percent differences between field duplicates will be  $\pm 50$  percent for soil and  $\pm 35$  percent for groundwater. If the RPDs exceed these limits, a replicate sample may be run to verify laboratory precision. If any RPD exceedance is linked to field sampling, the FD will recheck field sampling procedures and identify the problem. Resampling and analysis may be required.

Laboratory precision can be measured through the evaluation of laboratory control samples/laboratory control sample duplicates (LCSs/ LCSDs). The laboratory will perform the

analysis of one set of LCS/LCSD samples for every 20 samples. Laboratory precision will be evaluated by the RPD for each analyte between LCS/LCSD samples.

$$RPD = \frac{ABS(R1-R2)}{(R1+R2)/2} \times 100$$

Where:

ABS = absolute value

R1 = Sample result

R2 = Duplicate sample result.

The tolerance limit for percent differences between LCSD will be based on the laboratory accepted limits, which are established on a per-analyte basis and are evaluated annually. In general,  $\pm 20$  percent for soil and groundwater samples is acceptable. If the precision values are outside of their accepted limits, the laboratory will recheck the calculations and/or identify the problem. Reanalysis may be required.

- **Sensitivity.** Sensitivity is the ability of a chemical *analysis to discern the difference between very small amounts of substance* (Ecology, 2004). Sensitivity requirements of the data are set by the target method reporting limits (MRLs) and method detection limits (MDLs) of the analytical methods (see Tables A-9 and A-10), and will be verified by the reported MRLs/MDLs in the laboratory data report. All MRLs will be lower than the respective screening criteria for the parameters of interest.
- **Bias/Accuracy.** Bias is *the difference between the population mean and the true value of the parameter being measured* (Ecology, 2004). Bias can be a result of sample design (intentional or unintentional), sample handling, laboratory instrument calibration, or contamination. Bias from sample handling will be minimized by following the recommended sample container preservation and holding times required for each analysis, which are shown in Table A-11 and A-12). Bias from laboratory methods will be minimized through instrument calibration and analysis of blanks, with results reported in the laboratory data report and subject to a data validation review.

Accuracy may be expressed as a percentage of the true or reference value for reference material or as spike recovery from matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to evaluate laboratory precision. The following equations are used to express accuracy:

- For reference materials: Percent of true value = (measured value/true value) x 100
- For spiked samples:

$$\text{Percent recovery} = \frac{[SQ - NQ]}{S} \times 100$$

Where:

SQ = quantity of spike or surrogate found in sample

NQ = quantity found in native (unspiked) sample

S = quantity of spike or surrogate added to native sample

The performance of the method will be monitored using surrogate compounds or elements. Surrogate standards are added to all samples, method blanks, MS, and calibration

standards. The laboratory establishes acceptable tolerance limits annually and will apply those limits when conducting their internal data review and qualification. Typically, recoveries between 70- 130 percent are acceptable.

- **Comparability.** Comparability is a qualitative parameter expressing the confidence with which one data set can be compared against another. Comparability will be assessed by using Ecology-accredited laboratories, which are running standard analytical methods for all analyses. Additionally, split samples (i.e., duplicates) of selected groundwater, surface water, and porewater samples will be submitted to both laboratories for analyses of dissolved arsenic, iron, and manganese to evaluate the comparability of methods used.

MQOs will be based on the standard accuracies prescribed for each analytical method used in the laboratory. The achievement of MQOs based on laboratory precision and bias of analytical methods will be determined through validation of laboratory QC data, as described in Section 3.6. For field-measured parameters, MQOs will be met by regular calibration of field instruments, which will be documented. MQOs for sensitivity include setting target MRLs at or below preliminary screening levels as much as practical, and meeting the MDLs required for geochemical fate and transport modeling, as discussed below.

### **3.3 Analytical Methods and Reporting Limits**

The analytical methods and target detection and reporting limits to meet the MQOs are provided in Table A-9 for solid media, and as Table A-10 for aqueous media.

Chemical analysis of sediment, soil, groundwater, surface water, and porewater will be performed by Test America and Brooks in accordance with the methods listed in the tables. Samples will be analyzed in accordance with established methods with the exception of the batch adsorption and sequential extraction testing that will be performed in accordance with the procedures described in Attachment 2.

Groundwater, porewater, and surface water samples may create analytical interferences for trace metals analyses due to the potential high level of dissolved solids in the samples (e.g., brackish, saline). To achieve optimal detection limits and minimize accuracy bias for metals, the laboratories will select the appropriate analytical method with consultation with the Senior Geochemist and/or Chemistry QA Manager (e.g., reductive precipitation). To assist the laboratory in identifying brackish or saline water samples, the field measured SC for each water sample with conductance greater than 1,000  $\mu\text{S}/\text{cm}$  will be noted on the COC form.

Both laboratories will submit electronic data packages for validation, including analytical results and QC results as discussed in Section 3.4 through 3.6.

### **3.4 Quality Control Procedures**

QC procedures are in place for both field sampling procedures and laboratory analytical methods, as described below.

#### **3.4.1 Field Quality Control**

The following steps and activities will ensure QC to achieve data quality objectives during field activities, and will be overseen by the FD:

- Close adherence to the SAP, and documentation of any deviations from the SAP

- Maintain a detailed field notebook and field logs
- Collection of field duplicate samples at a rate of at least 5 percent (1 in 20) of total samples for all media sampled (groundwater from monitoring wells and temporary borings, porewater, surface water, soil, sediment), as indicated in Tables A-3 and A-4 for solids and aqueous samples, respectively.
- Collection of field blanks
- Collection of equipment rinsate blanks for soil and sediment
- Maintenance of a field temperature blank for each cooler
- Use of appropriate, lab-supplied sample containers and preservatives (see Tables A-11 and A-12)
- Adherence to appropriate holding times (see Tables A-11 and A-12)
- Daily calibration of field instruments, and documentation of standards used
- Completion and appropriate use of COC documentation
- Limited photographs of site and site sampling event
- Adherence to standard operating procedures in sample collection methods

### 3.4.2 Field QA/QC Samples

QC requirements will be instituted during field sampling, sample handling, sample transfer, and data management to ensure that the DQOs are met; detailed information on laboratory QA/QC procedures and reporting are provided below. If any field QC problems are encountered, they will be brought to the attention of the PM, RI Manager, SAC, or Chemistry QA Manager. Corrective actions, if appropriate, will be implemented to meet the project DQOs.

Field QC procedures for soil and groundwater samples are used to assess within-station variability (e.g., replicates), evaluate the effectiveness of sample homogenization and within-sample variability (e.g., duplicates), evaluate potential sources of sample cross-contamination (e.g., rinsate and trip blanks), or confirm proper shipping/storage conditions (e.g., temperature blanks). Duplicate samples will be collected at a 5 percent frequency during each soil, sediment, porewater, surface water and groundwater sampling event.

Field QA/QC samples will be used to evaluate the effectiveness of field decontamination and processing procedures. The following types of field QA/QC samples will be collected:

- **Duplicate samples:** Duplicate samples will be collected for each media (soil, sediment, groundwater, surface water, porewater and sediment). At least 5 percent (1/20) field duplicates will be collected and analyzed.
- **Trip blank samples:** Trip blanks will not be collected because volatile organic compounds are not a Site-associated contaminant.
- **Porewater method blank:** A method blank consisting of the water used to fill the passive porewater samples will be collected and analyzed during each event.
- **Rinsate and equipment blanks:** will not be collected because samples will be collected using either disposable or dedicated sample tubing, which prevents cross-contamination.

Field QA/QC samples will be blind-labeled and preserved as if they are typical samples. Field QA/QC samples will be clearly identified on the sample collection logs. Analytical results from the blanks facilitate crosschecking of the data. Detection of analytes in blanks may indicate possible

contamination introduced by field or laboratory procedures. All field QA/QC samples will be documented in the field logbook and verified by the QA/QC manager or designee.

Field samples and QA/QC samples will be packaged, managed, and transferred to the primary contract laboratory according to the appropriate procedures and with sufficient time and coordination to meet analytical holding times

### 3.4.3 Laboratory QA/QC Procedures

Laboratory QA/QC will be maintained through the use of standard EPA methods and other accepted methods and standard analytical procedures for the target analytes. Analytical methods and QC measurements and criteria are based on the current SW-846 requirements, and EPA guidance. The Chemistry QA Manager will coordinate with the primary contract laboratory during performance of the chemical analyses and through delivery and validation of the laboratory results.

Laboratory QA/QC will be maintained through the use of standard EPA methods and other accepted methods and standard analytical procedures for the target analytes. Analytical methods and QC measurements and criteria are based on the current SW-846 requirements, and EPA guidance. The Chemistry QA Manager will coordinate with the primary contract laboratory during performance of the chemical analyses and through delivery and validation of the laboratory results (data validation is discussed in Section 3.6).

As noted for the field QC protocols, the field samples will be packaged, managed, and transferred to the primary contract laboratory according to the appropriate procedures and with sufficient time and coordination to meet analytical holding times, as generally summarized in Tables A-11 and A-12. Following the successful delivery of samples, the laboratory will follow the method-specific and other analytical and laboratory QC procedures and protocols that will be requested by the laboratory before selection.

- **Internal QC Samples:** Various QC samples are used to evaluate the precision, accuracy, representativeness, completeness, and comparability of the analytical results. Analytical methods specify routine procedures that are required to evaluate if data are within proper QC limits.
- **Method Reporting Limit (MRL) Check:** MRL checks, as applicable, are made to ensure that primary contract laboratory instrumentation can achieve the required MRLs. If the initial calibration curve contains a standard at the MRL, the laboratory may forgo analyzing a daily MRL check standard. If not, the laboratory will run an MRL check standard per analytical sequence. This sample will be after the instrument blank check sample and before analyzing samples from this group. The instrument must be able to achieve the requested MRLs without interference. If the instrument cannot achieve these levels, the samples must be analyzed on a different instrument that is able to achieve the required MRLs for this project.
- **Method Blanks:** Introduction of chemicals during sampling and analytical activities will be assessed by the analysis of blanks. Method blanks, as applicable, are used to check for laboratory contamination and instrument bias. Laboratory method blanks will be analyzed at a minimum frequency of 5 percent for all chemical parameter groups.
- **Laboratory Duplicates:** Sample analytical variability and laboratory precision and accuracy will be determined by the analysis of primary contract laboratory-generated sample splits at a frequency of 5 percent or at least once per batch. The duplicate results will be used for determination of RPD. Variability in organic compound analysis will be evaluated by analysis of MS and MSD samples. Duplicate samples for inorganic analysis will be analyzed at a

frequency of approximately 5 percent. Conventional parameters also will be analyzed in duplicate at a frequency of 5 percent. Precision and accuracy information will be generated for dioxins and furans using the ongoing precision and recovery samples run per the method.

- **Surrogate Spikes:** Surrogate compound analysis for organic analyses also will follow the guidance in the primary contract laboratory's standard operating procedures (SOPs) and will evaluate the laboratory's ability to recover the analytes of interest. If data fall outside the established limits for the surrogates, a corrective action must be implemented, and the Chemistry QA Manager will be notified. The corrective action can range from re-analysis to re-extraction/re-analysis of the sample. If after these actions the surrogates are still outside of established limits, it will be considered matrix effects and narrated in the final data validation report. Qualification of data will occur when organic compound surrogate recoveries fall outside acceptance limits and will be noted in the laboratory case narrative.
- **Laboratory Control Samples:** LCS, as applicable, are used to monitor the primary contract laboratory's day-to-day performance of routine analytical methods independent of matrix effects. In this sampling effort an LCS/LCSD pair will be analyzed at a minimum frequency of 5 percent. For inorganic samples, a standard reference material (SRM) also will be run. If the laboratory runs a blank spike and blank spike duplicate for organics, then it also will run an appropriate SRM.
- **Matrix Spike and Matrix Spike Duplicates:** MS and MSD samples, as applicable, provide information to assess precision and accuracy. The primary contract laboratory will follow EPA guidance for MS/MSD sample analysis. Percent recoveries, including RPD, will be assessed for organic compounds from the MS/MSD and for inorganic compounds from the MS. MS/MSD recovery will be measured at a minimum frequency of 5 percent

The laboratories will comply with all standard operating procedures, analytical methods, and their own QA plans except as noted by the modified analytical methods described in Attachment 2.

Results of QC samples from each group will be reviewed by the analyst immediately after a sample group has been analyzed. QC sample results will then be evaluated to determine if control limits have been exceeded. If control limits are grossly exceeded in the sample group, the QA manager will be contacted immediately and corrective action (e.g., method modifications followed by reprocessing the affected samples) will be initiated prior to processing a subsequent group of samples.

#### 3.4.4 Laboratory Sample Processing/Storage

Field soil and sediment samples that will be analyzed for arsenic speciation, batch adsorption and sequential extraction testing will be collected, handled and processed following the anoxic procedure described in Section 2.4.2.2 and transported to Brooks on ice.

Brooks will process soil and sediment samples in an anoxic nitrogen fill glove box. Using the following process:

1. Remove sample from the sealed anoxic Mylar bag (nitrogen or argon filled bag)
2. Remove sample from core tube (if applicable)
3. Place the entire sample in laboratory cleaned stainless steel bowl and homogenize with stainless steel spoon (or equivalent)

4. Place homogenized sample into appropriate sample jars for analyses and to create laboratory QA/QC samples.
5. Send subsample(s) in appropriate laboratory provided containers to Test America for testing of additional parameters (e.g., grainsize). Maintaining anoxic conditions is not needed for sample transfers. Samples will be maintained and shipped under COC procedures and will maintain GSI field sample ID numbers.

The laboratories will maintain a thorough sample inventory (written and/or computerized). Samples will be tracked by GSI sample number, laboratory sample number, site name, date of sample analysis, parameters, contaminants found, sample matrices, and remaining sample volume.

Selected soil and sediment samples will be archived by the contract analytical laboratories. The laboratories will provide secured archival storage of samples with controlled access. Samples will be frozen and maintained under COC procedures. Samples may be archived for up to a 1 year period.

### **3.5 Laboratory Data Reporting Requirements**

Analytical data records will be retained by the laboratory and stored electronically in the GSI project file and project database. Because data are a direct electronic output from the Laboratory Information Management System, hard-copy data packages will not be requested or stored for this project. The analytical laboratory will be required, where applicable, to provide the following:

**A. General Project Information:**

1. Site Name
2. Laboratory Coordinator's name
3. GSI Project Manager and Project Number

**B. Case Narrative**

In the form of a cover letter, this summary will discuss problems, if any, encountered during any aspect of analysis. This summary should discuss, but is not limited to, QC, sample shipment, sample storage, and analytical difficulties. Any problems encountered (actual or perceived) and their resolutions will be documented in as much detail as appropriate.

**C. COC Records**

Legible copies of COC forms will be provided as part of the data package. Forms will include the time of receipt and condition of each sample received by the laboratory. Additional internal tracking of sample custody by the laboratory will also be documented on a sample receipt form. The form must include all sample shipping container temperatures measured at the time of sample receipt.

**D. Sample Results**

1. Field sample ID and corresponding laboratory sample number
2. Date and time sample received
3. Sample matrix (e.g., groundwater, soil, sediment, porewater)
4. Analytical Method – MDLs and MRLs (including sample – specific factors such as dilution, total solids, etc.)
5. Sample preparation

6. Extraction date and time
7. Instrument used for analysis
8. Date and time of analyses
9. Analytical results with reporting units
10. Data qualifiers and definitions

#### **E. QA/QC Results**

The results of laboratory QA/QC procedures will be summarized in the data package. QA/QC sample analysis will be documented with the same information required for sample results (see above). No recovery or blank corrections will be made by the laboratory. The required summaries are listed below, though additional information may be requested:

1. Laboratory QA Manager sign-off sheet
2. MS and MSD data
3. Method blank analyses
4. Surrogate spike recoveries
5. Replicate results
6. Internal standard recoveries
7. LCS results

### **3.6 Data Validation and Usability**

Data validation or data review will be performed using U.S. Environmental Protection Agency National Functional Guidelines data validation procedures (EPA, 2002, 2008, 2010b), project-specific DQOs, analytical method criteria, and the laboratories' internal performance standards based on their standard operating procedures.

Data will be reviewed by the laboratory, as data are generated. The Laboratory PM or designee will be responsible for ensuring that the data generated meet minimum QA/QC requirements, and that instruments are operating under acceptable conditions during generation of data. DQOs will also be assessed by comparing the results of QC measurements with pre-established criteria, as a measure of data acceptability. The Laboratory PM will ensure that appropriate QC procedures have been followed at the laboratory, and that data are correct and complete.

Analytes detected at concentrations between the MRL and the MDL will be reported with a J qualifier to indicate that the value is an estimate (i.e., the analyte concentration is below the calibration range). J-qualified data are considered valid when completeness is calculated. Undetected data will be reported at the MRL. The MRL will be adjusted by the laboratory as necessary to reflect sample dilution or matrix interference.

Data validation will be performed by GSI. The Chemistry QA Manager will coordinate with the primary contract laboratory during sample analysis and delivery of analytical results. The Chemistry QA Manager will perform data validation of the reported results to document the performance of the laboratory analyses and to determine the usability of the data toward meeting project objectives. The Chemistry QA Manager will review data packages for completeness immediately upon receipt from the laboratory to ensure that data and QA/QC information requested are present



and will conduct data validation on the data packages received from the laboratory. The data validation (Level 2 plus) generally will address the following components:

- QC analysis frequency
- Analysis holding times
- MDLs
- MRLs
- COC documentation and sample receipt condition
- Field duplicate results
- Porewater method blank results
- Surrogate recoveries
- LCS/LCSD recoveries
- MS/MSD recoveries
- MS/MSD RPDs

The Chemistry QA Manager will review the field notebooks, laboratory reports, and the data validation report to determine if the data quality objectives have been met. Instances where the data quality objectives were not met will be documented. The usability of the data will depend on the magnitude of the data quality objective exceedance. Data that has been rejected will be flagged as “R” and will not be included in the database. The QA Officer will determine if rejected data trigger additional sample collection.

Data validation review and findings will be documented and summarized in the RI report.

### **3.7 Corrective Actions**

Upon receipt of data, the Chemistry QA Manager will evaluate field and laboratory precision by the RPDs between the field duplicate and sample data. Non-conforming items and activities are those which do not meet the project requirements or approved work procedures.

Corrective actions that will be taken as a result of non-conformance during field activities will be situation-dependent. If possible, the FD will identify any action that can be taken in the field to correct any non-conformance observed during field activities. Corrective action may consist of a modification of methods or a re-collection of samples. If implementation of corrective action in the field is not possible, the non-conformance and its potential impact on data quality will be discussed in the data quality section of the RI/FS Report.

The laboratory will be contacted regarding any deviations from the QAPP, will be asked to provide written justification for such deviations, and in some instances, will be asked to reanalyze the sample(s) in question. All corrective actions must be documented. The person identifying the nonconformance will be responsible for its documentation.

Documentation will be made available to project, laboratory, and/or QA management. Appropriate personnel will be notified by the management of any significant nonconformance detected by the project, laboratory, or QA staff. Implementation of corrective actions will be the responsibility of the FD or the Chemistry QA Manager.

## **3.8 Data and Records Management**

### **3.8.1 Field Documentation**

A field notebook will be used to record activities during the sampling event, noting any discrepancies from the FSP. The FD will maintain the notebook. The following information will be recorded on a daily basis in either the notebook or record-keeping forms to be included with the notebook:

- Date, general description of site conditions and weather
- Documentation of sampling personnel on site, including subcontractors
- Documentation of site safety considerations and health and safety briefings
- Time, location, medium, and sample ID of each sample collected
- Documentation of instrument calibration
- Documentation of field parameters collected
- Deviations from SAP or other problems in the field
- Visitors to the Site relating to the sampling event
- Communications made with outside parties relating to the sampling event
- Time of day that work began and stopped

### **3.8.2 Analytical Data Management**

Analytical data will be received as an EDD from the laboratory and maintained by the Data Manager as part of project-specific database. Data will also be uploaded to the Ecology EIM database, which is accessible online.

All hard copies of field forms or log book pages scanned as PDFs and stored electronically in the project files. Well installation logs and boring logs will be transcribed from hand-written field notes into formal electronic logs. Field forms, field-prepared boring logs, and graphic logs will be included in the RI/FS report appendices.

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**Table A-1. Project Contact List**

Name	Project Role	Company	Email	Direct Phone	Cell Phone
<b>Common Consultants</b>					
Rod Struck	Senior Project Manager (PM)	GSI	<a href="mailto:Rstruck@gsiws.com">Rstruck@gsiws.com</a>	503-200-8510	503-536-5810
Erin Carroll Hughes	Remedial Investigation Manager (RI Manager)	GSI	<a href="mailto:EcHughes@gsiws.com">EcHughes@gsiws.com</a>	503-200-8528	503-927-4553
Peter Pellegrin	Field Director (FD)	GSI	<a href="mailto:PPellegrin@gsiws.com">PPellegrin@gsiws.com</a>	971-200-8514	503-729-9098
Renee Fowler	Sampling and Analysis Coordinator (SAC)	GSI	<a href="mailto:RFowler@gsiws.com">RFowler@gsiws.com</a>	503-200-8512	503-318-4521
Steven Kuhlmeier	Field Support	GSI	<a href="mailto:SKuhlmeier@gsiws.com">SKuhlmeier@gsiws.com</a>	971-200-8529	208-631-4887
Jacob Gorski	Field Support	GSI	<a href="mailto:Jgorski@gsiws.com">Jgorski@gsiws.com</a>	971-200-8516	925-389-2281
Cindy Ryals	Chemical QA Manager and Data Manager (DM)	GSI	<a href="mailto:Cryals@gsiws.com">Cryals@gsiws.com</a>	971-200-8531	503-799-7326
Brad Bessinger	Senior Geochemist	SSPA	<a href="mailto:bbessinger@sspa.com">bbessinger@sspa.com</a>	360-566-7119	360-566-7119
<b>Sub-Consultants</b>					
Darryl Metzger	Drilling Project Manager	Steadfast Services Northwest	<a href="mailto:dmetzger@steadfast-services.com">dmetzger@steadfast-services.com</a>	971-645-9242	
Christabel Escarez	Analytical Project Manager	Test America	<a href="mailto:Christabel.Escarez@testamericainc.com">Christabel.Escarez@testamericainc.com</a>	253-248-4975	
Elizabeth Madonik	Analytical Project Manager	Brooks Applied Labs	<a href="mailto:elizabeth@brooksapplied.com">elizabeth@brooksapplied.com</a>	206-632-6206, ext. 141	
Ben Foster	Private Utility Locator	Applied Professional Services, Inc.	<a href="mailto:benf@apslocates.com">benf@apslocates.com</a>	425-864-4443	
Mike McEvilly	Surveyor	Sitts & Hill Engineers, Inc.	<a href="mailto:MikeMcEvilly@sitts-hill-engineers.com">MikeMcEvilly@sitts-hill-engineers.com</a>	253-474-9449	
--	Lab Courier Service	Thunderdog Delivery	<a href="mailto:info@thunderdogdelivery.com">info@thunderdogdelivery.com</a>	866-610-9183	
<b>Client Contacts</b>					
Rob Healy	Project Manager	Port of Tacoma	<a href="mailto:rhealy@portoftacoma.com">rhealy@portoftacoma.com</a>	253-428-8643	503-970-6855
Mark Larsen	Project Manager	Anchor QEA (Portac Consultant)	<a href="mailto:mlarsen@anchorqea.com">mlarsen@anchorqea.com</a>	206-903-3359	206-310-2263
Nik Bacher	Managing Geologist	Anchor QEA (Portac Consultant)	<a href="mailto:nbacher@anchorqea.com">nbacher@anchorqea.com</a>	206-287-9130	206-351-0951
Patrick Ryan	Attorney	Perkins Coie LLP (Portac Rep)	<a href="mailto:PRyan@perkinscoie.com">PRyan@perkinscoie.com</a>	206-359-8662	
<b>Ecology Contacts</b>					
Andrew Smith	Site Manager	Ecology	<a href="mailto:ansm461@ECY.WA.GOV">ansm461@ECY.WA.GOV</a>	360-407-6316	
Jason Landskron	Cleanup PM/Geochemist	Ecology	<a href="mailto:jala461@ECY.WA.GOV">jala461@ECY.WA.GOV</a>	360-407-6388	

**Table A-2. Proposed Monitoring Well Locations**

Well Identification	Location	Latitude (WGS84)	Longitude (WGS84)	Sample Method	Sample Type	Number of Samples	Sample Interval <sup>1</sup>
MW-5R	Sawmill	47.24928	-122.37024	Direct Push or Split Spoon	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
MW-7	Log Yard	47.25319	-122.37227	Direct Push or Split Spoon	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
MW-8	Log Yard	47.25320	-122.36719	Direct Push or Split Spoon	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
MW-9	Log Yard	47.25261	-122.37225	Direct Push or Split Spoon	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
MW-10	Log Yard	47.25262	-122.37136	Direct Push or Split Spoon	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
MW-11	Log Yard	47.25263	-122.36920	Direct Push or Split Spoon	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
MW-12	Log Yard	47.25206	-122.37224	Direct Push or Split Spoon	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
MW-13	Log Yard	47.25207	-122.37135	Direct Push or Split Spoon	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.

**Table A-2. Proposed Monitoring Well Locations**

**Notes:**

bgs = below ground surface

ft = feet

MW = monitoring well drilling

PVC = polychlorinated vinyl

Sch = schedule

WGS84 = World Geodetic System 1984

1 Selection of sampling depth intervals are discussed in the SAP.

**Table A-3. Analytical Schedule for Soil and Sediment**

Site	Station Type	Station ID	Sample ID <sup>1,2,3</sup>	Sample Depth	Number of Samples	Within Nearshore Study Area?	Standard Analytical Suite					Add-Ons		Nearshore Study Area Geochemical					Archived Only <sup>4</sup>
							Arsenic	Iron	Total Organic Carbon (TOC)	Total Solids	Frozen Archival	Pentachlorophenol (PCP) and pH	Dioxins/Furans	Sulfide	Grain-Size	Sequential Extractions	Batch Adsorption	Arsenic Speciation - As(III)/As(V)	
<b>Soil Testing</b>																			
Log Yard	New Monitoring Wells	MW-7	MWS007-x_x	See Figure 4 <sup>5</sup>	6	yes	1	1	1	1	1			1	1	1	1	1	5
		MW-8	MWS008-x_x	See Figure 4 <sup>5</sup>	4		1	1	1	1	1								3
		MW-9	MWS009-x_x	See Figure 4 <sup>5</sup>	6	yes	1	1	1	1	1			1	1	1	1	1	5
		MW-10	MWS010-x_x	See Figure 4 <sup>5</sup>	4	yes	1	1	1	1	1			1	1	1	1	1	3
		MW-11	MWS011-x_x	See Figure 4 <sup>5</sup>	4		1	1	1	1	1								3
		MW-12	MWS012-x_x	See Figure 4 <sup>5</sup>	6	yes	1	1	1	1	1			1	1	1	1	1	5
		MW-13	MWS013-x_x	See Figure 4 <sup>5</sup>	4	yes	1	1	1	1	1			1	1	1	1	1	3
	Temporary Borings	TB-1	TBS001-x_x	See Figure 4 <sup>5</sup>	4		1	1	1	1	1								3
		TB-2	TBS002-x_x	See Figure 4 <sup>5</sup>	4		1	1	1	1	1								3
		TB-3	TBS003-x_x	See Figure 4 <sup>5</sup>	4	yes	1	1	1	1	1			1	1	1	1	1	3
		TB-4	TBS004-x_x	See Figure 4 <sup>5</sup>	4		1	1	1	1	1								3
		TB-5	TBS005-x_x	See Figure 4 <sup>5</sup>	4	yes	1	1	1	1	1			1	1	1	1	1	3
		TB-6	TBS006-x_x	See Figure 4 <sup>5</sup>	4		1	1	1	1	1								3
		TB-7	TBS007-x_x	See Figure 4 <sup>5</sup>	4	yes	1	1	1	1	1			1	1	1	1	1	3
TB-8	TBS008-x_x	See Figure 4 <sup>5</sup>	4		1	1	1	1	1								3		
Sawmill	New Monitoring Well	MW-5R <sup>6</sup>	MW005R-x_x	See Figure 4 <sup>5</sup>	6		1	1	1	1	1	1	1					5	
	Temporary Borings	TB-9	TBS009-x_x	Artificial Fill	2	yes	1	1	1	1	1	1			1			1	
			TBS009-x_x	Channel Bottom	2	yes	1	1	1	1	1	1			1			1	
			TBS009-x_x	Native Sediments	2	yes	1	1	1	1	1	1			1			1	
	Test Pit	TP-1	TP-1	TPS001-x_x	Surface Soil <sup>7</sup>	1	yes	1	1	1	1	1	1	1					0
				TPS001-x_x	Saturated Zone <sup>8</sup>	1	yes	1	1	1	1	1	1	1					0
				TPS002-x_x	Surface Soil <sup>7</sup>	1	yes	1	1	1	1	1	1	1					0
TPS002-x_x				Saturated Zone <sup>8</sup>	1	yes	1	1	1	1	1	1	1					0	
QA/QC	Field Duplicate	--	ccc5zz-x_x	--	2	--	2	2	2	2	2	1	1	1	1	1	1	--	

**Table A-3. Analytical Schedule for Soil and Sediment**

Site	Station Type	Station ID	Sample ID <sup>1,2,3</sup>	Sample Depth	Number of Samples	Within Nearshore Study Area?	Standard Analytical Suite					Add-Ons		Nearshore Study Area Geochemical					
							Arsenic	Iron	Total Organic Carbon (TOC)	Total Solids	Frozen Archival	Pentachlorophenol (PCP) and pH	Dioxins/Furans	Sulfide	Grain-Size	Sequential Extractions	Batch Adsorption	Arsenic Speciation - As(III)/As(V)	Archived Only <sup>4</sup>
<b>Sediment Testing</b>																			
Log Yard	Wapato Creek Transect	WCT-1A	WCTSD001A-x_x	0-10 cm, 40-50 cm	2	yes	2	2	2	2	2			2	2	*	*	*	0
		WCT-1B	WCTSD001B-x_x	0-10 cm, 40-50 cm	2	yes	2	2	2	2	2			2	2	*	*	*	0
		WCT-2A	WCTSD002A-x_x	0-10 cm, 40-50 cm	2	yes	2	2	2	2	2			2	2	*	*	*	0
		WCT-2B	WCTSD002B-x_x	0-10 cm, 40-50 cm	2	yes	2	2	2	2	2			2	2	*	*	*	0
		WCT-3A	WCTSD003A-x_x	0-10 cm, 40-50 cm	2	yes	2	2	2	2	2			2	2	*	*	*	0
		WCT-3B	WCTSD003B-x_x	0-10 cm, 40-50 cm	2	yes	2	2	2	2	2			2	2	*	*	*	0
Sawmill	Wapato Creek Transect	WCT-4A	WCTSD004A-x_x	0-10 cm, 40-50 cm	2	yes	2	2	2	2	2			2	2				0
		WCT-4B	WCTSD004B-x_x	0-10 cm, 40-50 cm	2	yes	2	2	2	2	2	2			2	2			
QA/QC	Field Duplicate	--	ccc5zz-x_x	--	1	--	1	1	1	1	1	0		1	1	1	1	1	--

**Notes:**

cm = centimeters

\* = Four sediment samples will be selected for analysis based on initial sediment results.

1 x\_x = sample interval (i.e., sample interval of 0-1 ft bgs would be 0\_1).

2 ccc = sample type abbreviation associated with field duplicate or equipment rinsate blank.

3 zz = station ID number associated with field duplicate or equipment rinsate blank.

4 Count includes samples that are only archived. Analyzed samples that will also be archived are not included in this count

5 Soil will be sampled as outlined in Figure 4 and the SAP. Sample collected 1-2 feet below groundwater table will be analyzed as well as archived. Samples from other intervals will be archived.

6 New monitoring well MW-5R is a replacement well for MW-5, which will be abandoned.

7 Soil sample will be collected approximately 1.5 to 2.5 feet bgs, as outlined in the SAP.

8 Soil sample will be collected 0.5 to 1.5 feet below groundwater table, as outlined in the SAP.



**Table A-4. Groundwater Field Parameter Stabilization Goals**

Parameter	Units	Stabilization Goals <sup>1</sup>
pH	standard units	± 0.1
Temperature	°C	± 0.2
Specific Conductivity	µmhos/cm	± 5% (SC ≤ 100) ± 3% (SC > 100)
Dissolved Oxygen	mg/L	± 0.3
ORP/Eh	mV	± 10 <sup>2</sup>
Turbidity	NTU	10 % for three consecutive values greater than 5 NTUs; if three consecutive values are less than 5 NTU, consider the values as stabilized. <sup>2</sup>

**Notes**

1 Stability criteria obtained from USGS National Field Manual for the Collection of Water Quality Data: Chapter A4, Collection of Water Samples (USGS, 2006).

2 Stability criteria from the US Environmental Protection Agency (EPA) Region 1. Standard Operating Procedure for Low-Stress (low-flow) Purging and Sampling from Monitoring Wells (EPA, 2010). Available from <http://www.epa.gov/region1/lab/qa/pdfs/EQASOP-GW001.pdf>

ORP/Eh = oxidation reduction potential

**Table A-5. Analytical Schedule for Surface Water, Porewater, and Groundwater**

Site	Station Type	Station ID	Sample ID <sup>1,2,3,4</sup>	Sample Depth	Number of Samples per Event	Within Nearshore Study Area?	Standard Analytical Suite							Add-Ons	Nearshore Study Area Geochemical				
							Water Field Parameters <sup>5</sup>	Headspace Monitoring (Methane)	Manual Water Level	Arsenic (total and dissolved)	Organic Carbon (total and dissolved)	Sulfide (dissolved)	Iron and Manganese (dissolved)		Pentachlorophenol (PCP)	Transducer Water Levels	Major Cations/Anions (dissolved) <sup>6</sup>	Alkalinity (dissolved) <sup>7</sup>	Nitrate and Nitrite(dissolved)
<b>Groundwater Testing</b>																			
Log Yard	New Monitoring Well	MW-7	MW007-En	Screened Interval	1	yes	1	1	1	1	1	1	1		1	1	1	>	
		MW-8	MW008-En	Screened Interval	1		1	1	1	1	1	1	1						
		MW-9	MW009-En	Screened Interval	1	yes	1	1	1	1	1	1	1		1	1	1	1	>
		MW-10	MW010-En	Screened Interval	1	yes	1	1	1	1	1	1	1		1	1	1	1	>
		MW-11	MW011-En	Screened Interval	1		1	1	1	1	1	1	1		1				
		MW-12	MW012-En	Screened Interval	1	yes	1	1	1	1	1	1	1		1	1	1	1	>
		MW-13	MW013-En	Screened Interval	1	yes	1	1	1	1	1	1	1		1	1	1	1	>
	Existing Monitoring Well	B-1R	B001R-En	Screened Interval	1	yes	1	1	1	1	1	1	1		1	1	1	1	>
		B-3R	B003R-En	Screened Interval	1		1	1	1	1	1	1	1						
		B-6R	B006R-En	Screened Interval	1		1	1	1	1	1	1	1		1				
		HC-1 <sup>9</sup>	HC001-En	Screened Interval	1		1	1	1	1	1	1	1						
		HC-2 <sup>9</sup>	HC002-En	Screened Interval	1	yes	1	1	1	1	1	1	1		1	1	1	1	>
	Temporary Boring (Event 1 Only)	TB-1	TBGW001-En	Saturated Zone	1		1	1	1	1	1	1	1						
		TB-2	TBGW002-En	Saturated Zone	1		1	1	1	1	1	1	1						
		TB-3	TBGW003-En	Saturated Zone	1	yes	1	1	1	1	1	1	1		1	1	1	1	>
		TB-4	TBGW004-En	Saturated Zone	1		1	1	1	1	1	1	1						
		TB-5	TBGW005-En	Saturated Zone	1	yes	1	1	1	1	1	1	1		1	1	1	1	>
		TB-6	TBGW006-En	Saturated Zone	1		1	1	1	1	1	1	1						
TB-7		TBGW007-En	Saturated Zone	1	yes	1	1	1	1	1	1	1		1	1	1	1	>	
TB-8		TBGW008-En	Saturated Zone	1		1	1	1	1	1	1	1							

**Table A-5. Analytical Schedule for Surface Water, Porewater, and Groundwater**

Site	Station Type	Station ID	Sample ID <sup>1,2,3,4</sup>	Sample Depth	Number of Samples per Event	Within Nearshore Study Area?	Standard Analytical Suite							Add-Ons	Nearshore Study Area Geochemical						
							Water Field Parameters <sup>5</sup>	Headspace Monitoring (Methane)	Manual Water Level	Arsenic (total and dissolved)	Organic Carbon (total and dissolved)	Sulfide (dissolved)	Iron and Manganese (dissolved)		Pentachlorophenol (PCP)	Transducer Water Levels	Major Cations/Anions (dissolved) <sup>6</sup>	Alkalinity (dissolved) <sup>7</sup>	Nitrate and Nitrite(dissolved)	Iron Speciation - Fe(II)/Fe(III) (dissolved)	Arsenic Speciation - As(III)/As(V) (dissolved) <sup>8</sup>
<b>Groundwater Testing</b>																					
Sawmill	New Monitoring Well	MW-5R <sup>10</sup>	MW005R-En	Screened Interval	1		1	1	1	1	1	1	1	1							
	Existing Monitoring Well	MW-1	MW001-En	Screened Interval	1	yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	>
		MW-2R	MW002R-En	Screened Interval	1	yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	>
		MW-3	MW003-En	Screened Interval	1	yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	>
		MW-4	MW004-En	Screened Interval	1	yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	>
		MW-6R	MW006R-En	Screened Interval	1		1	1	1	1	1	1	1	1	1						
	B-5R	B005R-En	Screened Interval	1	yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	>
Temporary Boring	TB-9	TBGW009-En	Saturated Zone	1	yes	1	1	1	1	1	1	1	1								
QA/QC	Field Duplicate, Monitoring Wells	--	ccc5zz-En	--	1	--				1	1	1	1	1			1	1	1	1	
	Field Duplicate, Temporary Boring (Event 1 Only)	--	ccc5zz-En	--	1	--				1	1	1	1								
<b>Porewater Testing</b>																					
Log Yard	Wapato Creek Transect	WCT-1A	WCTPW001A-x_x-En	0-10 & 40-50 cm bml	2	yes	2	2	2	2	2	2	2				2	2	2	2	>
		WCT-1B	WCTPW001B-x_x-En	0-10 & 40-50 cm bml	2	yes	2	2	2	2	2	2	2				2	2	2	2	>
		WCT-2A	WCTPW002A-x_x-En	0-10 & 40-50 cm bml	2	yes	2	2	2	2	2	2	2				2	2	2	2	>
		WCT-2B	WCTPW002B-x_x-En	0-10 & 40-50 cm bml	2	yes	2	2	2	2	2	2	2				2	2	2	2	>
		WCT-3A	WCTPW003A-x_x-En	0-10 & 40-50 cm bml	2	yes	2	2	2	2	2	2	2				2	2	2	2	>
		WCT-3B	WCTPW003B-x_x-En	0-10 & 40-50 cm bml	2	yes	2	2	2	2	2	2	2				2	2	2	2	>
Sawmill	Wapato Creek Transect	WCT-4A	WCTPW004A-x_x-En	0-10 & 40-50 cm bml	2	yes	2	2	2	2	2	2	2				2	2	2	2	>
		WCT-4B	WCTPW004B-x_x-En	0-10 & 40-50 cm bml	2	yes	2	2	2	2	2	2	2				2	2	2	2	>
QA/QC	Field Duplicate	--	WCTPW5zz-x_x-En	--	1	--				1	1	1	1	1			1	1	1	1	1
	Method Blank	--	WCTPW5MB-En	--	1	--				1	1	1	1	1			1	1	1	1	1

**Table A-5. Analytical Schedule for Surface Water, Porewater, and Groundwater**

Site	Station Type	Station ID	Sample ID <sup>1,2,3,4</sup>	Sample Depth	Number of Samples per Event	Within Nearshore Study Area?	Standard Analytical Suite							Add-Ons	Nearshore Study Area Geochemical					
							Water Field Parameters <sup>5</sup>	Headspace Monitoring (Methane)	Manual Water Level	Arsenic (total and dissolved)	Organic Carbon (total and dissolved)	Sulfide (dissolved)	Iron and Manganese (dissolved)		Pentachlorophenol (PCP)	Transducer Water Levels	Major Cations/Anions (dissolved) <sup>6</sup>	Alkalinity (dissolved) <sup>7</sup>	Nitrate and Nitrite(dissolved)	Iron Speciation - Fe(II)/Fe(III) (dissolved)
<b>Surface Water Testing</b>																				
Log Yard	Wapato Creek Transect	WCT-1B	WCTSW001B-Qn-yyyy	10 cm aml	1	yes	1	1	1	1	1	1	1			1	1	1	1	>
		WCT-2B	WCTSW002B-Qn-yyyy	10 cm aml	1	yes	1	1	1	1	1	1	1			1	1	1	1	>
		WCT-3B	WCTSW003B-Qn-yyyy	10 cm aml	1	yes	1	1	1	1	1	1	1			1	1	1	1	>
Sawmill	Wapato Creek Transect	WCT-4B	WCTSW004B-Qn-yyyy	10 cm aml	1	yes	1	1	1	1	1	1	1	1		1	1	1	1	>
Blair Waterway	Blair Waterway Background	BWB-1	BWSW001-Qn-yyyy	2 to 3 feet below water surface	1	yes	1	1	1	1	1	1	1			1	1	1	1	>
Upstream	Wapato Creek Background	USB-1	USSW001-Qn-yyyy	10 cm aml	1	yes	1	1	1	1	1	1	1			1	1	1	1	>
QA/QC	Field Duplicate	--	ccc5z-Qn-yyyy	--	1	--				1	1	1	1	1	1	1	1	1	1	1

**Notes:**

> = See footnote 6 below

cm aml = centimeters above mudline

cm bml = centimeters below mudline

1 x\_x = sample interval (i.e., sample interval of 0-10 cm bml would be 0\_10).

2 En = sampling event number (E1 through E4)

3 ccc = sample type abbreviation associated with field duplicate or equipment rinsate blank.

4 zz = station ID number associated with field duplicate or equipment rinsate blank.

5 Field parameters are temperature, pH, specific conductance (SC), oxidation reduction potential (ORP), dissolved oxygen (DO), and turbidity

6 Major Cations include calcium, magnesium, potassium, and sodium. Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.

7 Alkalinity includes total, carbonate as CaCO<sub>3</sub>, bicarbonate as CaCO<sub>3</sub>, and hydroxide as CaCO<sub>3</sub>.

8 Arsenic speciation testing will be performed on water samples with arsenic concentrations greater than (>) 36 µg/L.

9 Wells HC-1 and HC-2 historically contained perched groundwater but are anticipated to be dry with the presence of the cap. The wells will be checked for the presence of perched water and if recoverable quantities of groundwater are encountered, then the well(s) will be sampled for the analytes listed above. If recoverable quantities of groundwater are not encountered, then the wells will not be sampled.

10 New monitoring well MW-5R is a replacement well for MW-5, which will be abandoned.

Table A-6. Temporary Boring and Test Pit Locations

Station ID	Location	Latitude (WGS84)	Longitude (WGS84)	Sample Method	Sample Type	Number of Samples	Sample Interval <sup>1</sup>
<i>Temporary Borings</i>							
TB-1	Log Yard	47.25361	-122.37137	Direct Push	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
TB-2	Log Yard	47.25360	-122.36921	Direct Push	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
TB-3	Log Yard	47.25319	-122.37199	Direct Push	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
TB-4	Log Yard	47.25320	-122.36921	Direct Push	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
TB-5	Log Yard	47.25262	-122.37196	Direct Push	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
TB-6	Log Yard	47.25264	-122.36716	Direct Push	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
TB-7	Log Yard	47.25207	-122.37195	Direct Push	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
TB-8	Log Yard	47.25207	-122.36920	Direct Push	Discrete	1 for Analysis; 4 to 6 for Archival	Sample will be collected from approximately 1 to 2 feet below the water table and submitted for analysis; additional samples from the unsaturated zone, the capillary fringe, and saturated zone will be collected for archival at approximate three foot intervals.
TB-9	Sawmill	47.25163	-122.37196	Direct Push	Discrete	3 for Analysis; 3 for Archival	Sample will be collected from the artificial fill, channel bottom, and native sediment. Three additional samples will be collected for archival.

**Table A-6. Temporary Boring and Test Pit Locations**

Station ID	Location	Latitude (WGS84)	Longitude (WGS84)	Sample Method	Sample Type	Number of Samples	Sample Interval <sup>1</sup>
<b>Test Pits</b>							
TP-1	Sawmill	47.25013	-122.37215	Backhoe	Discrete	2 for Analysis	0.5-1.5 ft bgs, Saturated Zone
TP-2	Sawmill	47.25007	-122.37220	Backhoe	Discrete	2 for Analysis	0.5-1.5 ft bgs, Saturated Zone

**Notes:**

ft bgs = feet below ground surface

TB = temporary boring

TP = test pit

WGS84 = World Geodetic System 1984

1 Selection of sampling depth intervals are discussed in the SAP. Additional soil samples from the capillary fringe and saturated zone will be collected for archival at the lab.

**Table A-7. Surface Water Sample Locations**

Station ID	Location	Latitude (WGS84)	Longitude (WGS84)	Sample Type	Sample Depth
BWB-1	Blair Waterway	47.25406111	-122.3735685	Grab	2 - 3 feet below water surface
USB-1	Upstream	47.24634661	-122.3697141	Grab	10 cm aml
WCT-1	Log Yard	47.25318999	-122.3724441	Grab	10 cm aml
WCT-2	Log Yard	47.25261383	-122.3724532	Grab	10 cm aml
WCT-3	Log Yard	47.25206411	-122.3724806	Grab	10 cm aml
WCT-4	Sawmill	47.2500244	-122.372473	Grab	10 cm aml

**Notes:**

aml = above mud line

BWB = Blair Waterway Background

USB = Upstream Background

WCT = Wapato Creek transect

WGS84 = World Geodetic System 1984

**Table A-8. Sediment and Porewater Sample Locations**

Station ID	Location	Latitude	Longitude	Sample Media	Sample Type	Number of Samples	Sample Depth (bml)
WCT-1A	Log Yard	47.25319019	-122.3723612	Porewater	Discrete	2	0-10 cm, 40-50 cm
WCT-1B	Log Yard	47.25318999	-122.3724441	Porewater	Discrete	2	0-10 cm, 40-50 cm
WCT-2A	Log Yard	47.25261422	-122.3723678	Porewater	Discrete	2	0-10 cm, 40-50 cm
WCT-2B	Log Yard	47.25261383	-122.3724532	Porewater	Discrete	2	0-10 cm, 40-50 cm
WCT-3A	Log Yard	47.25206431	-122.3724003	Porewater	Discrete	2	0-10 cm, 40-50 cm
WCT-3B	Log Yard	47.25206411	-122.3724806	Porewater	Discrete	2	0-10 cm, 40-50 cm
WCT-4A	Sawmill	47.25002716	-122.3724073	Porewater	Discrete	2	0-10 cm, 40-50 cm
WCT-4B	Sawmill	47.2500244	-122.372473	Porewater	Discrete	2	0-10 cm, 40-50 cm
WCT-1A	Log Yard	47.25319019	-122.3723612	Sediment	Discrete	2	0-10 cm, 40-50 cm
WCT-1B	Log Yard	47.25318999	-122.3724441	Sediment	Discrete	2	0-10 cm, 40-50 cm
WCT-2A	Log Yard	47.25261422	-122.3723678	Sediment	Discrete	2	0-10 cm, 40-50 cm
WCT-2B	Log Yard	47.25261383	-122.3724532	Sediment	Discrete	2	0-10 cm, 40-50 cm
WCT-3A	Log Yard	47.25206431	-122.3724003	Sediment	Discrete	2	0-10 cm, 40-50 cm
WCT-3B	Log Yard	47.25206411	-122.3724806	Sediment	Discrete	2	0-10 cm, 40-50 cm
WCT-4A	Sawmill	47.25002716	-122.3724073	Sediment	Discrete	2	0-10 cm, 40-50 cm
WCT-4B	Sawmill	47.2500244	-122.372473	Sediment	Discrete	2	0-10 cm, 40-50 cm

**Notes:**

bml = below mud line

cm = centimeters

WCT = Wapato Creek transect

WGS84 = World Geodetic System 1984



Table A-9. Soil and Sediment: Analytes, Analytical Methods, Detection Limits, Method Reporting Limits, and Preliminary Screening Level Values

Analyte	Laboratory	Analytical Method	Reporting Limit	Method Detection Limit	Units	Preliminary Screening Level Values <sup>a</sup>						
						MTCA A Industrial (WAC 173-340)	MTCA C for Soil (WAC 173-340)		Natural Soil Background (ECY 94-115)	Washington Marine Sediment Quality Standards <sup>b</sup> (WAC 173-204-562)		Natural Sediment Background (SCUM II)
							Non cancer	Cancer		Sediment Cleanup Objective	Cleanup Screening Level	
Pentachlorophenol	TA	8270D SIM	0.0200	0.0050	mg/kg		17,500	328		0.360	0.690	
Grain-Size <sup>c</sup>	TA	D422	N/A	N/A	N/A							
pH <sup>c</sup>	TA	9045D	N/A	N/A	N/A							
TOC <sup>c</sup>	TA	9060	2000	44.4	mg/kg							
Sulfide <sup>c</sup>	TA	9034	5.00	2.40	mg/kg							
Dioxins/Furans	TA	1613B			pg/g		4,080	1,683	5.2 <sup>f</sup>			4 <sup>e</sup>
2,3,7,8-TCDD			1.00		pg/g							
2,3,7,8-TCDF			1.00		pg/g							
1,2,3,7,8-PeCDD			5.00		pg/g							
1,2,3,7,8-PeCDF			5.00		pg/g							
2,3,4,7,8-PeCDF			5.00		pg/g							
1,2,3,4,7,8-HxCDD			5.00		pg/g							
1,2,3,6,7,8-HxCDD			5.00		pg/g							
1,2,3,7,8,9-HxCDD			5.00		pg/g							
1,2,3,4,7,8-HxCDF			5.00		pg/g							
1,2,3,6,7,8-HxCDF			5.00		pg/g							
1,2,3,7,8,9-HxCDF			5.00		pg/g							
2,3,4,6,7,8-HxCDF			5.00		pg/g							
1,2,3,4,6,7,8-HpCDD			5.00		pg/g							
1,2,3,4,6,7,8-HpCDF			5.00		pg/g							
1,2,3,4,7,8,9-HpCDF			5.00		pg/g							
OCDD			10.0		pg/g							
OCDF			10.0		pg/g							
Total Solids	Brooks	BAL-0501	NA	NA	mg/kg							
Arsenic	Brooks	6020 Mod. (ICP-QQQ-MS)	0.11	0.035	mg/kg	20	1,050	87.5	7.30 <sup>d</sup>	57	93	11 <sup>e</sup>
Arsenic III <sup>g</sup>	Brooks	BAL-4100/BAL-4111/BAL-4112 (IC-ICP-CRC-MS)	0.05	0.005	mg/kg							
Arsenic V <sup>g</sup>	Brooks	BAL-4100/BAL-4111/BAL-4112 (IC-ICP-CRC-MS)	0.05	0.005	mg/kg							
DMAs <sup>g</sup>	Brooks	BAL-4100/BAL-4111/BAL-4112 (IC-ICP-CRC-MS)	0.05	0.005	mg/kg							
MMAAs <sup>g</sup>	Brooks	BAL-4100/BAL-4111/BAL-4112 (IC-ICP-CRC-MS)	0.05	0.005	mg/kg							
Iron <sup>c</sup>	Brooks	6020 Mod. (ICP-QQQ-MS)	3.2	1.0	mg/kg		2,450,000		36,128 <sup>d</sup>			
Sequential Extractions <sup>c</sup>	Brooks	See Attachment 2	See Table 10	See Table 10	ug/L							
Batch Adsorption <sup>c</sup>	Brooks	See Attachment 2	See Table 10	See Table 10	ug/L							
<b>Applied to Soil:</b>						<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>			
<b>Applied to Sediment:</b>										<b>x</b>	<b>x</b>	<b>x</b>

**Notes**  
a Blank cells indicate a screening level value is not published for the given analyte. Sediment standards will be applied to sediment samples; MTCA values will be applied to upland soil samples. Screening levels for soil leaching to groundwater are not considered because both Site groundwater and surface water are anticipated to be brackish due to tidal influences and the Site proximity to Commencement Bay, rendering them non-potable water sources.  
b The Washington Sediment Management Standards (2013) define freshwater sediment as surface sediments in which the sediment pore water contains less than or equal to 0.5 parts per thousand (ppt) salinity, and marine sediment pore water contains 25 ppt salinity or greater. Site sediment is expected to be classified as marine.  
c Analysis is being performed to develop the geochemical conceptual site model and understand fate and transport of chemicals at the site. Not considered an indicator hazardous substance for the Site.  
d 90th percentile concentration for the Puget Sound. Natural Background Soil Metals Concentrations in Washington State. Toxics Cleanup Program. Washington Department of Ecology. Pub #94-115. October 1994.  
e 90/90 Upper Tolerance Limit, intended to be used as a guide for sediment natural background values for Puget Sound, from Table 10-1 of the Sediment Cleanup Users Manual II, Department of Ecology, March 2015. Values listed as dry weight. Dioxin/furan value listed as 2,3,7,8-TCDD toxic equivalent.  
f Natural Background for Dioxins/Furans in WA Soils. Technical Memorandum #8. Washington Department of Ecology. Publication No. 10-09-053. August 9, 2010. Value listed is 2,3,7,8-TCDD toxic equivalent.  
g Estimated laboratory detection limits and reported limits. If samples need to be analyzed at a dilution or reduced mass, MDLs will be increased proportionally.

**Abbreviations**

Brooks = Brooks Applied Labs	MTCA = Model Toxics Control Act
CRC = Collision Reaction Cell	N/A = Not applicable
DMA = dimethylarsinic acid	QQQ = Triple Quadrupole
ECY indicates Washington State Department of Ecology Publication Number	SCUM = Ecology Sediment Cleanup Users Manual
IC = ion chromatography	SIM = selective ion monitoring
ICP = inductively coupled plasma	SOP = Standard Operating Procedure
MMA = monomethylarsonic acid	TA = Test America Laboratory

Table A-10. Surface Water, Porewater, and Groundwater: Analytes, Analytical Methods, Detection Limits, Method Reporting Limits, and Preliminary Screening Level Values

Analyte	Laboratory	Analytical Method	Reporting Limit	Method Detection Limit	Units	Preliminary Screening Level Values <sup>a</sup>						
						Water Quality Standards For Surface Waters of the State of Washington (WAC 173-201A)		NTR 40 CFR 131	MTCA B for Surface Water (WAC 173-340)		Marine Water Background	
						Marine Water Acute	Marine Water Chronic	Marine Water Fish Consumption	Non cancer	Cancer		
Pentachlorophenol	TA	8270D SIM	0.020	0.0136	ug/L	13.0	7.9	8.2	1180	1.47		
Sulfide (dissolved) <sup>b</sup>	TA	4500 S2 D	0.050	0.007	mg/L							
Major Cations <sup>b</sup>	TA	6010C										
Calcium	TA		1.10	0.0230	mg/L							
Magnesium	TA		1.10	0.133	mg/L							
Potassium	TA		3.30	0.146	mg/L							
Sodium	TA		2.0	0.550	mg/L							
Major Anions <sup>b</sup>	TA	300.0										
Bromide	TA		0.50	0.060	mg/L							
Chloride	TA		0.50	0.040	mg/L							
Fluoride	TA		0.20	0.030	mg/L							
Sulfate	TA		1.20	0.260	mg/L							
Nitrite as N <sup>b</sup>	TA	300.0	0.40	0.080	mg/L							
Nitrate as N <sup>b</sup>	TA	300.0	0.20	0.020	mg/L							
Major Ions <sup>b</sup> (ortho-phosphate)	TA	365.1	0.10	0.030	mg/L							
Organic Carbon (total and dissolved) <sup>b</sup>	TA	SM5310B	0.5	0.05	mg/L							
Alkalinity (dissolved)	TA	SM2320B	5.0	5.00	mg/L							
Arsenic (total)	TA	6020A	5.0	1.35	ug/L			0.14	17.7	0.0982	5 <sup>d</sup>	
Arsenic (dissolved)	TA	6020A	5.0	1.35	ug/L	69	36					
Iron <sup>b</sup> (dissolved)	TA	6020A	200.0	29.0	ug/L							
Manganese (dissolved) <sup>b</sup>	TA	6020A	10.0	1.77	ug/L							
Arsenic (total)	Brooks	1638 Mod. (ICP-QQQ-MS)	0.048	0.016	ug/L			0.14	17.7	0.0982	5 <sup>d</sup>	
Arsenic (dissolved)	Brooks	1638 Mod. (ICP-QQQ-MS)	0.048	0.016	ug/L	69 <sup>f</sup>	36 <sup>f</sup>					
Arsenic III (dissolved) <sup>e</sup>	Brooks	SOP #BAL-1400 (IC-ICP-CRC-MS)	0.020	0.002	ug/L							
Arsenic V (dissolved) <sup>e</sup>	Brooks	SOP #BAL-1400 (IC-ICP-CRC-MS)	0.020	0.002	ug/L							
DMAs <sup>b,e</sup>	Brooks	SOP #BAL-1400 (IC-ICP-CRC-MS)	0.020	0.002	ug/L							
MMA <sup>b,e</sup>	Brooks	SOP #BAL-1400 (IC-ICP-CRC-MS)	0.020	0.002	ug/L							
Iron <sup>b</sup> (dissolved)	Brooks	1638 Mod. (ICP-QQQ-MS)	0.40	0.12	ug/L							
Iron II <sup>b</sup> (dissolved)	Brooks	SM3500B	20.0	7.5	ug/L							
Iron III <sup>b</sup> (dissolved)	Brooks	SM3500B	20.0	7.5	ug/L							
Manganese (dissolved) <sup>b</sup>	Brooks	1638 Mod. (ICP-QQQ-MS)	0.063	0.021	ug/L							
			<b>Applied to Groundwater:</b>				x	x	x			x
			<b>Applied to Surface Water/Porewater:</b>				x	x	x	x	x	x

Notes

- a Blank cells indicate a screening level value is not published for the given analyte. Screening levels for drinking water scenarios are not considered because both Site groundwater and surface water are anticipated to be brackish due to tidal influences and the Site proximity to Commencement Bay, rendering them unlikely non-potable water sources. Should the data collected indicate otherwise, drinking water screening levels will be used.
- b Analyte is being tested to develop geochemical conceptual site model and understand fate and transport of chemicals at the site. Not considered an indicator hazardous substance for the Site.
- c Updated Water Quality Standards for Surface Waters Of the State of Washington, WAC 173-201A, are currently undergoing review, including the development of human health criteria. In the case of arsenic, the proposed value is 10 ug/L, which would be higher than the current 5 ug/L value generally accepted by Ecology under MTCA Method A.
- d MTCA Method A value for groundwater used as surrogate for the natural background concentration of arsenic in marine water. Under MTCA rules, cleanup levels are not established below natural background levels. Therefore, the background concentration will be the lowest screening level value applied to the data.
- e Estimated laboratory detection limits and reported limits. If samples need to be analyzed at a dilution or reduced mass, MDLs will be increased proportionally.
- f Value is based on National Recommended Water Quality Criteria for Aquatic Life, which is expressed in terms of the dissolved metal in the water column. It is appropriate to compare this value to dissolved arsenic concentrations from the Site since the dissolved fraction is generally considered more mobile and bioavailable.

Abbreviations

- Brooks = Brooks Applied Labs
- CRC = Collision Reaction Cell
- CFR = Code of Federal Regulations
- DMA = dimethylarsinic acid
- IC = ion chromatography
- ICP= inductively coupled plasma
- MMA = monomethylarsonic acid
- MS =mass spectrometry
- MTCA = Model Toxics Control Act
- NTR = National Toxics Rule
- QQQ = Triple Quadrupole
- SIM = selective ion monitoring
- SOP = Standard Operating Procedure
- TA = Test America Laboratory
- WAC = Washington Administrative Code

**Table A-11. Soil and Sediment: Sample Container, Preservation Requirements, and Holding Times**

Analyte	Lab	Method	Sample Container	Volume	Preservation	Holding Time
TOC	TA	9060	G	4 oz	Cool	28 days
pH	TA	9045D				immediate
Pentachlorophenol	TA	8270D SIM				14 days
Grain-Size	TA	D422	G	16 oz	N/A	N/A
Sulfide	TA	9034	G	4 oz	Cool	28 days
Dioxins/Furans	TA	1613B	G	4 oz	Cool	none
Total Solids	Brooks	BAL-0501	N/A	N/A	N/A	N/A
Arsenic and Iron	Brooks	6020 Mod. (ICP-QQQ-MS)	G	20g (4 oz)	Cool	7 days to freeze; 1 year to analyze
Arsenic Speciation - As(III)/As(V)  DMAs  MMAs	Brooks	BAL-4100/BAL-4111/ BAL-4112 (IC-ICP-CRC-MS)	G	20g (4 oz)	Anoxic Preservation <sup>1</sup> , Dry Ice/ Freeze	7 days to freeze; 1 year to analyze
Sequential Extractions	Brooks	See Attachment 2	G	20g (4 oz)	Anoxic Preservation <sup>1</sup> , Dry Ice/ Freeze	7 days to freeze; 1 year to analyze
Batch Adsorption	Brooks	See Attachment 2	G	20g (4 oz)	Anoxic Preservation <sup>1</sup> , Dry Ice/ Freeze	7 days to freeze; 1 year to analyze

**Notes**  
 1. Samples will be handled following the procedure described in Section 2.4.2.2 of the Sampling and Analyses Plan. Samples will be placed on ice or dry ice in the field immediately following collection. Following anoxic sample homogenization at the laboratory, samples will be frozen and archived -15 °C.

**Abbreviations**

Brooks = Brooks Applied Labs	MMA = monomethylarsonic acid
CRC = Collision Reaction Cell	MS =mass spectrometry
Cool = Cool sample to ≤4° C	N/A = not applicable
DMA = dimethylarsonic acid	QQQ = Triple Quadrupole
DRC = dynamic reaction cell	SIM = selective ion monitoring
G = glass	SOP = Standard Operating Procedure
IC = ion chromatography	TA = Test America
ICP= inductively coupled plasma	TOC = total organic carbon

Table A-12. Surface Water, Porewater, and Groundwater: Sample Containers, Preservation Requirements, and Holding Times

Analyte	Lab	Method	Sample Container	Volume	Field Filter	Preservation <sup>1</sup>	Holding Time	
Arsenic (total)	TA	6020A	HDPE	250 mL	No	HNO <sub>3</sub>	180 days	
Organic Carbon (total)	TA	SM5310B	G- amber	250mL		Cool, H <sub>2</sub> SO <sub>4</sub>	28 days	
Pentachlorophenol	TA	8270D SIM	G - amber (2x250 mL)	500 mL		Cool	7 days	
Arsenic, Iron, Manganese (dissolved)	TA	6020A	HDPE	250 mL	Yes	HNO <sub>3</sub>	180 days	
Major Cations (calcium, magnesium, potassium, sodium; dissolved)	TA	6010C						
Major Anions (bromide, chloride, fluoride, sulfate; dissolved)	TA	300.0	HDPE	500 mL		Cool	28 days	
Nitrate as N and Nitrite as N (dissolved)	TA	300.0					48 hours	
Alkalinity (dissolved)	TA	SM2320B					14 days	
Major Anions (ortho-phosphate; dissolved)	TA	365.1	HDPE	250 mL		Cool	48 hours	
Sulfide (dissolved)	TA	4500 S2 D	HDPE	250 mL		Cool, ZnOAc+NaOH	7 days	
Organic Carbon (dissolved)	TA	SM5310B	G- amber	250mL		Cool, H <sub>2</sub> SO <sub>4</sub>	28 days	
Arsenic (total)	Brooks	1638 Mod. (ICP-QQQ-MS)	HDPE	125 mL		No	Cool, HNO <sub>3</sub> in lab	180 days
Arsenic, Iron, Manganese (dissolved)	Brooks	1638 Mod. (ICP-QQQ-MS)	HDPE	125 mL		Yes	Cool, HNO <sub>3</sub> in lab	180 days
Arsenic Speciation - As(III)/As(V)	Brooks	SOP #BAL-1400 (IC-ICP-CRC-MS)	V (2x9 mL)	18 mL	Pre-preserved with EDTA; minimal headspace; keep dark, cool		28 days	
DMA								
MMAs	Brooks	BAL-4500	G (2X40 mL)	80 mL	Cool, dark, HCL in field	48 hours		

**Abbreviations**

Brooks = Brooks Applied Labs

Cool = Cool sample to ≤4° C

CRC = Collision Reaction Cell

DMA = dimethylarsinic acid

G = glass

HCL = 4% degassed 6m hydrochloric acid.

HDPE = High density polyethylene

HNO<sub>3</sub> = add Nitric Acid to a pH<2 within 14 days of collection.

IC = ion chromatography

ICP= inductively coupled plasma

MMA = monomethylarsonic acid

MS =mass spectrometry

QQQ = Triple Quadrupole

SIM = selective ion monitoring

SOP = standard operating procedure

TA = Test America

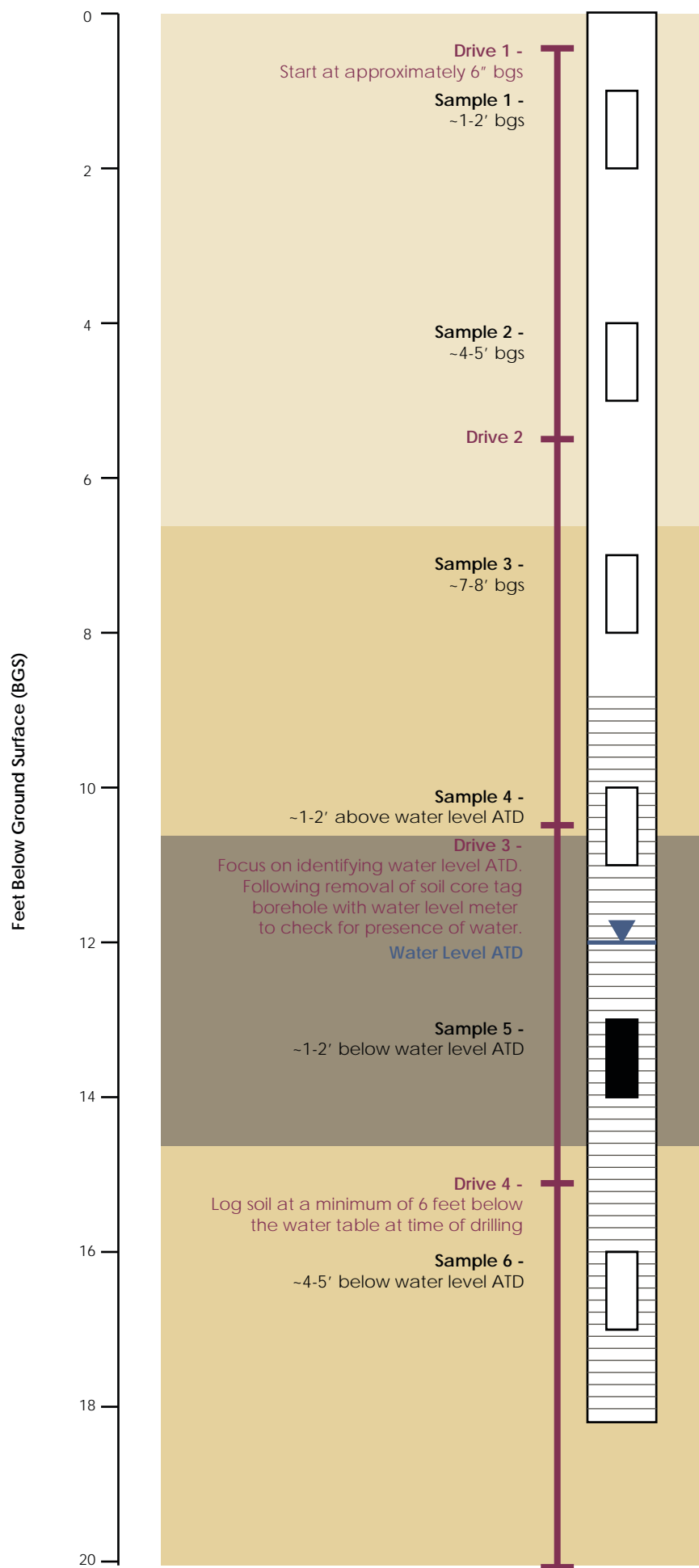
V = Vacutainer

Yes = samples will be filtered in the field using 0.45 micron filter.

# Figures

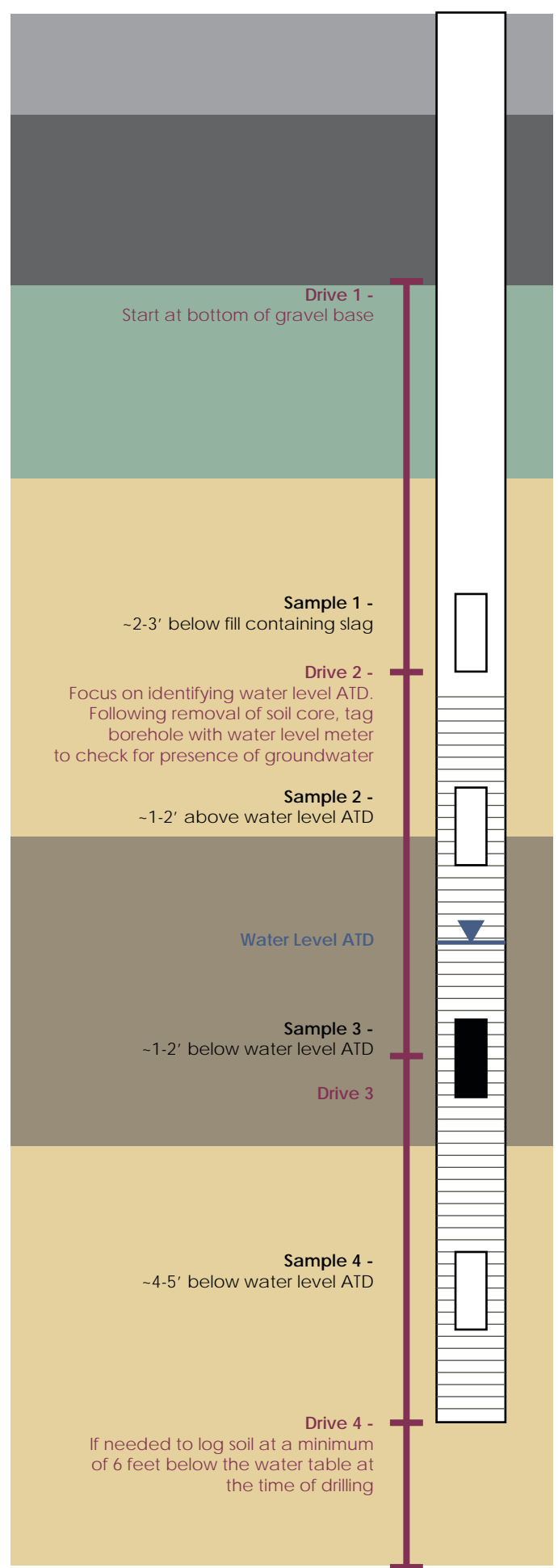
## BOREHOLE

- Uncapped Area (Log Yard, Sawmill)



## BOREHOLE

- Capped Area (Log Yard)



### LEGEND

- Sample for Analytical Testing (~1' Core)
- Sample for Archival (~1' Core)
- Approximate Location of Well Screen
- Geology**
- Roller Compacted Concrete
- Gravel Base, Coarse
- Fill
- Fill Containing Slag
- Silty Sand
- Silt

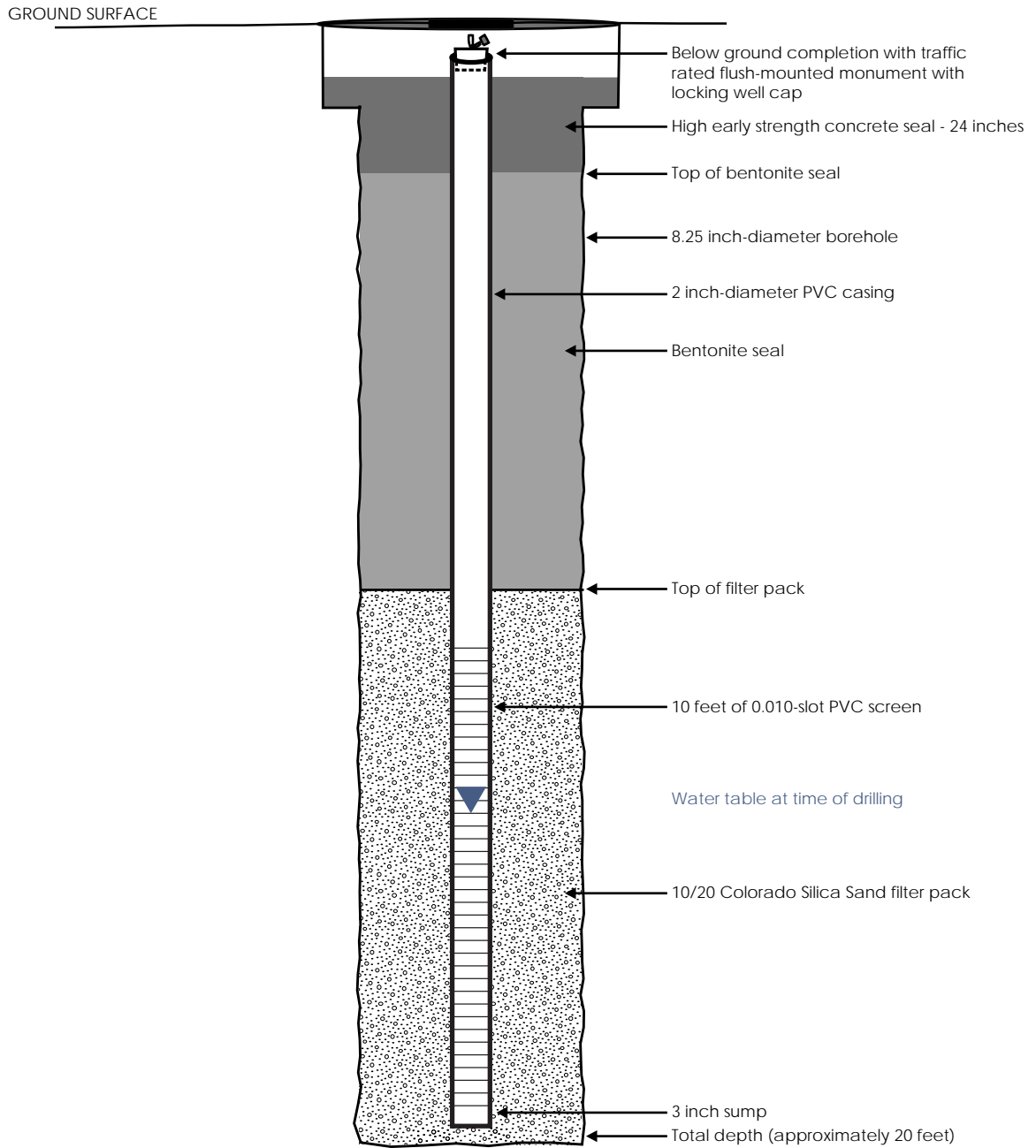
### NOTES:

ATD = At time of drilling  
 Actual sample locations will be based on consideration of soil type, stratigraphy, sample recovery, depth of water at time of drilling (ATD), observations, etc.  
 Well screen placement will be determined by field conditions.  
 Screen depths will be placed approximately 4 feet above and 6 feet below water level ATD.

### FIGURE A-1

Conceptual Soil Sampling Intervals  
 Sampling and Analysis Plan  
 Parcel 15 Investigation  
 Tacoma, WA





**NOTE:**  
Well drilling and construction will be performed in accordance with state regulations (Chapter 173-160 WAC) and other applicable regulations and guidance.

**FIGURE A-2**  
**New Monitoring Well Schematic**  
Sampling and Analysis Plan  
Parcel 15 Investigation  
Tacoma, WA



# Attachment 1 – Field Forms and Checklists

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Boring ID

Project Number

## WELL CONSTRUCTION

Project:		Location:	
Drilling Contractor:		Drilling Method:	
Start Date:	End Date:	Field Personnel:	
TOC Elev (& datum):		GS Elev (& datum):	
Static Water Levels:		WA ID:	Start Card: L

Well Construction Drawing (below ground completion)	Well Construction Materials	
(ground surface)	Borehole TD (ft bgs):	Well TD (ft bgs):
	Borehole Diameter:	inches to ft bgs
	Borehole Diameter:	inches to ft bgs
TOC →	Monument Type:	Lockable cap: yes / no
Surf. Seal →	Monument Diam. (in):	Industrial Traffic Rated: yes / no
Ann. Seal →	Well Casing Type:	Casing Diam. (in):
	Well Casing Interval:	ft bgs to ft bgs
	Screen Type:	Screen Length (ft):
	Screen Slot Size:	Screen Diameter (in):
	Screen Interval :	ft bgs to ft bgs
Well Casing →	Sump Type:	Sump Length:
	End Cap Type:	End Cap Length:
	Centralizer Type:	
	Centralizer Locations (ft bgs):	
	Backfill Material:	
Bent. Seal →	Backfill Interval:	ft bgs to ft bgs
	Filter Pack Material:	Calc. Quantity:
Filter Pack Seal →	Filter Pack Interval:	ft bgs to ft bgs
Seal →	Filter Pack Seal Material:	Calc. Quantity:
	Filter Pack Seal Interval:	ft bgs to ft bgs
Filter Pack →	Bentonite Seal Material:	Calc. Quantity:
	Bentonite Seal Interval:	ft bgs to ft bgs
	Annular Seal Material:	Calc. Quantity:
	Annular Seal Interval:	ft bgs to ft bgs
Screen →	Surface Seal Material:	
	Surface Seal Interval:	ft bgs to ft bgs
	Material Type:	Quantity (bags):
Sump →		
End Plug →		
Backfill →		
TD →		
NOT TO SCALE	<b>Holeplug:</b> 2"d = 1.6 lb/ft, 4"d = 6.3 lb/ft, 6"d = 14.1 lb/ft; <b>Grout:</b> 20% solids = 3.6 ft <sup>3</sup> /bag, 25% = 2.8 ft <sup>3</sup> /bag <b>Sand:</b> 2"d = 6.6 lb/ft, 4"d = 17.5 lb/ft, 6"d = 23.7 lb/ft	
	Notes (i.e., grout emplacement [tremied, poured, tamped], water source):	

bgs = below ground surface





Project Number

## WATER LEVEL DATA

Project: Parcel 15 Investigation

Field Personnel:

Weather:

Well ID	Location	Date	Time	Methane (%)	Depth to Water (ft btoc)	Comments
B-1R	Log Yard					
B-3R	Log Yard					
B-5R	Sawmill					
B-6R	Log Yard					
HC-1	Log Yard					
HC-2	Log Yard					
MW-1	Sawmill					
MW-2R	Sawmill					
MW-3	Sawmill					
MW-4	Sawmill					
MW-5R	Sawmill					
MW-6R	Sawmill					
MW-7	Log Yard					
MW-8	Log Yard					
MW-9	Log Yard					
MW-10	Log Yard					
MW-11	Log Yard					
MW-12	Log Yard					
MW-13	Log Yard					

General Comments:

**WELL DEVELOPMENT FIELD LOG**  
**Port of Tacoma/Portac**  
**Parcel 15 Investigation**

**Well I.D.:**

Client: Port of Tacoma/Portac	Well Dia:(in.): 0.75-inch - 2-inch - 4-inch - _____ other
Project #: 603.	Sand Pack Dia (in.):
Developed By:	Bore Hole Dia (in.):
Total Gallons Removed:	
Static Well Casing Volume [(TD-DTW) x gal/ft.]: _____ T.D. _____ DTW _____ gallons/ft. _____	
Start: Date / /	Time: DTW (BTOC): Total Depth (BTOC):
Stop: Date / /	Time: DTW (BTOC): Total Depth (BTOC):
Development Methods / Comments:	

Time	Volume Removed (gallons)	Temp (°C)	Cond. (µS/cm)	D.O. (mg/L)	pH (mV)	ORP (mV)	D.T.W. (0.01 ft.)	Surging (Y/N)	Clarity - Color - Remarks - (ntu)

**WELL DEVELOPMENT FIELD LOG**  
*Port of Tacoma/Portac*  
**Parcel 15 Investigation**

**Well I.D.:**

**Developer:**

**Date:**

Additional Development Methods / Comments/Observations:	

**Continued Development Records**

Time	Volume Removed (gallons)	Temp (°C)	Cond. (µS/cm)	D.O. (mg/L)	pH (mV)	ORP (mV)	D.T.W. (0.01 ft.)	Surging (Y/N)	Clarity - Color - Remarks - (ntu)

**Groundwater Sampling FIELD LOG**  
**Port of Tacoma/Portac**  
**Parcel 15 Investigation**

(Circle)

**Site** Logyard **Station Type** New MW **Headspace Methane** \_\_\_\_\_ **Date:** \_\_\_\_\_  
Sawmill Existing MW \_\_\_\_\_ %  
QAOC Temp.Boring \_\_\_\_\_ **Station I.D.:** \_\_\_\_\_

Total Depth: (ft)	Time	=	(X) 0.16 gal/ft	= Well Casing Volume:
	(-) DTW: (ft)			

Field Conditions:  
 Decontamination: Alconox + tap wash; Tap rinse; DI rinse

**PURGE INFORMATION**

<b>X</b>	Purge Method : GeoPump II peristaltic
	Purge Method :
	Refer to calibration log this date.

Pump Suction Depth(ft BTOC): \_\_\_\_\_ Purge water disposal: Drummed

Type of Flow Through Cell:	10 oz cup	<b>X</b>	YSI 556 Flow Cell
----------------------------	-----------	----------	-------------------

Comments/Exceptions to SAP:  
 \_\_\_\_\_  
 \_\_\_\_\_

Time	Purge Volume (gallons)	Temp. (°C)	SC (uS/cm)	DO (mg/L)	pH (mV)	ORP (mV)	Purge Rate (mL/min)	DTW (ft BTOC)	Pump Speed/*Clarity/ Color/Remarks (NTU)	
Stabilization Criteria		± 0.2	±3% (SC>100) ±5% (SC≤100)	± 0.3	± 0.1	± 10	--	--	± 10% (NTU>5) 3 readings < 5 (NTU<5)	
:	Pump On: <i>Water Reaches the Purge Bucket</i>								Initial	
:										
:										
:										
:										
:										
:										
:										
:										
:										
:	Start Sampling									
:	End Sampling									

\* VC=Very cloudy CI=Cloudy SC=Slightly Cloudy VSC=Very Slightly Cloudy AC=Almost Clear C=Clear CC=Crystal Clear

**Laboratory Analytical Program  
Port of Tacoma/Portac  
Groundwater Sampling Information**

Date:     /     /	<b>Time:</b> :						
<b>Sampling Method:</b>	From: A     dedicated purge tube disconnected from flow through cell						
	From: B     dedicated polyethylene bailer (other:             )						
<b>Sample I.D.</b>  _____	D u p l i c a t e	(Circle) Number of sample containers	Volume of each container	Container Type	P r e s v .	Method (A or B)	Analytical Method
(MW-B-HC-TB-XXX-E1) (TB003-E1 = GW sample from TB- 3, Event 1) (MW009-E1 = GW sample MW-9, Event 1)		1	500 ml	poly	4 <sup>0</sup> C		Nitrate E 300.0 Nitrite E 300.0 Bicarbonate E 310.1 Sulfate EPA 300.0 Chloride EPA 300.0
<i>(to be completed after finalization with the analytical laboratories)</i>							
<b>Examples Only ---&gt;</b>		1	250 ml	poly	HNO <sub>3</sub>		Dissolved Metals 200.7 <b>Field Filtered</b>
		1	250 ml	Amber glass	H <sub>2</sub> SO <sub>4</sub>		Diss. Organic Carbon <b>Field Filtered</b> SM 5310B
		1	40 ml	Vial	zincAc NaOH		NCASI RSC-2.01 Sulfide
		1	1 Liter	poly	zincAc NaOH		Sulfide SM 5310B
QAQC Samples (Sample ID and Time) (5XX is a duplicate sample)	4		match of parent sample				
<b>QA/QC:</b> One duplicate per sample type(GW-PW-SW)							
Labs: Brooks Applied Lab; 18804 North Creek Pkwy; Bothell, WA 98011 - 206-632-6206 Test America; 5755 8th Street E.; Tacoma, WA 98424 - 253-922-2310							



## Surface Water Sampling FIELD LOG

*Port of Tacoma/Portac*

Parcel 15 Investigation

Date: \_\_\_\_\_

**Wapato Creek Transect Surface Water Sampling  
(WCTSW)**

**Station I.D.:** \_\_\_\_\_

Low Tide (hhmm):	Sample Time (hhmm):	Height Above Mudline (cm):	Blair Waterway Depth (ft or NA):
---------------------	------------------------	-------------------------------	-------------------------------------

Field Conditions:

Decontamination: Alconox + tap wash; Tap rinse; DI rinse

### PURGE INFORMATION

<b>X</b>	Purge Method : GeoPump II peristaltic
	Purge Method :
	Refer to calibration log this date.

Distance to the NSDS stake(cm): \_\_\_\_\_ Coordinates (if needed): \_\_\_\_\_

Type of Flow Through Cell:	10 oz cup	<b>X</b>	YSI 556 Flow Cell
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Comments/Exceptions to SAP:

Time	Purge Volume (gallons)	Temp. (°C)	SC (uS/cm)	DO (mg/L)	pH (mV)	ORP (mV)	Purge Rate (mL/min)	DTW (ft BTOC)	Pump Speed/*Clarity/ Color/Remarks (NTU)	
Stabilization Criteria		± 0.2	±3% (SC>100) ±5% (SC≤100)	± 0.3	± 0.1	± 10	--	--	± 10% (NTU>5) 3 readings < 5 (NTU<5)	
:	Pump On: <i>Water Reaches the Purge Bucket</i>								Initial	
:										
:										
:										
:										
:										
:										
:										
:										
:										
:	Start Sampling									
:	End Sampling									

\* VC=Very cloudy CI=Cloudy SC=Slightly Cloudy VSC=Very Slightly Cloudy AC=Almost Clear C=Clear CC=Crystal Clear

**Laboratory Analytical Program**  
**Port of Tacoma/Portac**  
**Surface Water Sampling Information**

Date:     /     /		Time:     :						
Sampling Method:		From: A     dedicated purge tube disconnected from flow through cell						
		From: B     dedicated polyethylene bailer (other:                     )						
<b>Sample I.D.</b>		D u p l i c a t e	(Circle) Number of sample containers	Volume of each container	Container Type	P r e s s u r e	Method (A or B)	Analytical Method
_____ (BWSW-001-E1) (USBSW-001-E1) (WCTSW-001,2,3,4-E1)								
(to be completed after finalization with the analytical laboratories)			1	500 ml	poly	4 <sup>0</sup> C		Nitrate E 300.0 Nitrite E 300.0 Bicarbonate E 310.1 Sulfate EPA 300.0 Chloride EPA 300.0
Examples Only ---->			1	250 ml	poly	HNO <sub>3</sub>		Dissolved Metals 200.7 <b>Field Filtered</b>
			1	250 ml	Amber glass	H <sub>2</sub> SO <sub>4</sub>		Diss. Organic Carbon <b>Field Filtered</b> SM 5310B
			1	40 ml	Vial	zincAc NaOH		NCASI RSC-2.01 Sulfide
			1	1 Liter	poly	zincAc NaOH		Sulfide SM 5310B
<b>QAQC Samples</b>								
_____ (Sample ID and Time) (5XX is a duplicate sample)			4		match of parent sample			
Comments/Sketches:								
QA/QC: One duplicate per sample type(GW-PW-SW)								
Labs: Brooks Applied Lab; 18804 North Creek Pkwy; Bothell, WA 98011 - 206-632-6206 Test America; 5755 8th Street E.; Tacoma, WA 98424 - 253-922-2310								





# **Attachment 2: Arsenic Specialized Testing – Standard Operating Procedures**

*(Updated December 2016)*

## Batch Adsorption Test Description

Description of the batch adsorption testing procedure is described in EPA's *Batch Type Procedures for Estimating Soil Adsorption of Chemicals* (EPA 530/SW-87/006-F, April 1992). Chapter 17 of this document (Laboratory Procedures for Generating Adsorption Data) is included in this Attachment. Applicable steps are summarized in the table below.

The following soil:solution ratios ( $g_{\text{adsorbent}}:\text{mL}_{\text{solution}}$ ) will be used (assuming a fixed groundwater volume of 40 mL):

### Soil: Solution

1:4

1:10

1:50

1:200

Note that ratios are based on oven-dry equivalent weights of adsorbent, which must be calculated from air-dry weights using the method in Chapter 17, Section 7 of EPA (1992) (see attached document).

Three soil samples will initially (i.e., Step 1) be tested at a soil-to-solution ratio of 1:50 at three equilibration times (48 hours, 96 hours, and 168 hours) in order to determine the amount of time required for equilibrium to be achieved in the samples.

Based a review of the results of the three equilibration times, an appropriate equilibration time will be selected by the Parcel 15 consulting team in consultation with BAL and the remaining samples will be tested using the selected equilibration time. This means there will be a total of:

14 samples x 4 ratios (and selected equilibration time)  
+ 3 sample x 2 additional times  
62 tests total

In order to isolate the adsorption process from the potential co-precipitation of arsenic with iron (which occurs when site groundwater is used due to very high concentrations of dissolved iron), the batch adsorption tests will use a synthetic groundwater consisting of de-aerated water (pH = 6.5) at 0.025 M NaCl, spiked with 1,000 mg/L of arsenite. The ionic strength, composition, and pH of this water is based on average groundwater from the site. No additional ions will be included in the synthetic groundwater because the concentrations of possible, competing ions (e.g. phosphate) are reportedly below levels that would lead to competition with arsenic for adsorption sites on the aquifer solids.

Dissolved arsenic and pH after will be measured after spiking in order to determine initial conditions of the batch tests.

At the completion of each test, dissolved arsenic (EPA Method 1638, Mod.) and pH will be measured. Samples from the three tests (Step 1) will be analyzed on a 5-day turn-around-time from the completion of the batch tests.

**Table 1. Batch Adsorption Test Procedure (EPA 1992, Chapter 17)**

Chapter 17 Subsections	Subsection Title	Procedure
7.1 – 7.5	Preparation of Adsorbents	<p>7.1 Air dry samples until in equilibrium with moisture content of under anoxic conditions (in a glove box with nitrogen).</p> <p>7.2 Weigh air-dried samples and pass through 2-mm screen sieve. Crush large aggregates (without grinding). If pebbles are present, remove and weigh these.</p> <p>7.3 Homogenize sample. Use unbiased splitting procedure to remove representative subsample.</p> <p>7.4 Determine moisture content of air-dried sample.</p> <p>7.5 Determine the mass of the sample, corrected for moisture content (see equation in Section 7.5.1).</p>
8.5	Soil:Solution Procedure	<p>8.5.1 Calculate mass of adsorbent sample for the various soil: solution ratios based on an oven-dried equivalent weight. The volume of adsorbent plus solution should occupy 80-90% of the container.</p> <p>8.5.2 Weigh the samples of adsorbent (<u>anaerobic special handling procedures are required</u>).</p> <p>8.5.3 Place the weighed samples into clean, labeled containers.</p> <p>8.5.4 Pipette the solution containing the solutes from the stock groundwater solution (spiked with sodium arsenite at 1mg/L). The volume of solution should be identical in all containers.</p> <p>8.5.5 Pipette the stock solution into a container holding no adsorbent. This is the laboratory “blank.” One blank will be used for this study.</p> <p>8.5.6 Close the bottles, ensuring watertight seal, and place on rotary tumbler for mixing.</p> <p>8.5.7 Collect and preserve, an aliquot of stock solution before contact with reaction containers, adsorbent, and other surfaces. This aliquot of the stock solution will be analyzed with BAT extracts. This is the initial concentration that will be used for calculating total adsorption.</p> <p>8.5.8 Agitate samples at 29 rpm for specified test duration (48, 96, or 168 hours) at room temperature.</p> <p>8.5.9 After test, open containers and record temperature and pH.</p> <p>8.5.10 Separate the solid and liquid phase using either centrifugation or filtration (Section 5.2). Collect and preserve aliquots of each supernate of sufficient volume to determine arsenic concentration.</p> <p>8.5.11 Determine the arsenic concentration of the aqueous phase.</p>

## Sequential Extraction Test Description

Selected soil samples will be subjected to sequential extraction analysis to quantify the different forms of arsenic present. The extraction procedure is designed to release arsenic fractions from a sample according to its availability by subjecting the sample to a series of chemical treatments targeted at specific chemical forms.

A simplified procedure consisting of five extraction steps will be performed yielding the following fractions: (1) soluble, (2) exchangeable (strongly adsorbed), (3) sulfide and/or organic bound, (4) iron oxide, and (5) insoluble. Concentrations of arsenic, iron, manganese, sulfate, sulfide, and pH will be determined for each of the fractions collected. Details of the sequential extraction procedure, which is adapted from methods published by Dhoum and Evans (1998), Keon et al. (2001), and Wenzel et al. (2001), are provided in Table 1.

Sequential extraction procedures will be performed on subsamples taken from dried, homogenized, 2-mm sieved core samples. All sample handling and fraction collection prior to and including the first four extraction steps (except for agitation, centrifugation, and heating, during which sample tubes are tightly sealed) shall be done under a positive-pressure N<sub>2</sub> atmosphere to avoid oxidation artifacts.

## References

Dhoum, R.T., Evans, G.J. (1998) Evaluation of uranium and arsenic retention by soil from a low level radioactive waste management site using sequential extraction. *Applied Geochemistry* 13: 415-420.

Keon, N. E., Swartz, C. H., Brabander, D. J., Harvey, C., Hemond, H. F. 2001. Validation of an arsenic sequential extraction method for evaluating mobility in sediments. *Environmental Science & Technology* 35: 2778-2784.

Wenzel, W.W., Kirchbaumer, N., Prohaska, T., Stingeder, G., Lombi, E., Adriano, D. 2001. Arsenic fractionation in soils using an improved sequential extraction procedure. *Anal Chim Acta* 436:309-323.



PARCEL 15 INVESTIGATION – SAMPLING AND ANALYSIS PLAN  
ATTACHMENT 2B

<b>Table 1. Sequential Extraction Procedure</b>		
<b>Target Fraction</b>	<b>Extraction Fluid</b>	<b>Procedure</b>
Soluble	1 M MgCl <sub>2</sub> , pH 8	<ol style="list-style-type: none"> <li>1. Add 50 mL fluid to 1 g sample in centrifuge tube.</li> <li>2. Agitate in tumble-shaker for 8 hours at room temperature.</li> <li>3. Centrifuge for 25 minutes at 11,000g</li> <li>4. Decant fluid.</li> <li>5. Repeat steps 1 to 4 with new extraction fluid.</li> <li>6. Repeat steps 1, 3 and 4 with DI water.</li> <li>7. Combine all decanted fluid, acidify with HNO<sub>3</sub> to pH &lt;2, and analyze for COCs*. This is the soluble fraction</li> </ol>
Exchangeable (Strongly Adsorbed)	1 M NaH <sub>2</sub> PO <sub>4</sub> , pH 5	<ol style="list-style-type: none"> <li>1. Add 50 mL fluid to same 1 g sample in centrifuge tube.</li> <li>2. Agitate in tumble-shaker for 16 hours at room temperature.</li> <li>3. Centrifuge for 25 minutes at 11,000g</li> <li>4. Decant fluid.</li> <li>5. Repeat steps 1 to 4 with new extraction fluid for 24 hours.</li> <li>6. Repeat steps 1, 3 and 4 with DI water.</li> <li>7. Combine all decanted fluid, acidify with HNO<sub>3</sub> to pH &lt;2, and analyze for COCs*. This is the exchangeable fraction</li> </ol>
Amorphous oxides/As-sulfide/Organic Bound	0.1 M NaOH	<ol style="list-style-type: none"> <li>1. Add 50 mL fluid to same 1 g sample in centrifuge tube.</li> <li>2. Agitate in tumble-shaker for 16 hours at room temperature.</li> <li>3. Centrifuge for 25 minutes at 11,000g</li> <li>4. Decant fluid.</li> <li>5. Repeat steps 1 to 4 with new extraction fluid for 24 hours.</li> <li>6. Repeat steps 1, 3 and 4 with DI water.</li> <li>7. Combine all decanted fluid and analyze for COCs*. This is the sulfide/organic fraction.</li> </ol>
Iron Oxide	0.2 M ammonium oxalate/oxalic acid with 0.1 M ascorbic acid, pH 3	<ol style="list-style-type: none"> <li>1. Add 50 mL fluid to same 1 g sample in centrifuge tube.</li> <li>2. Set in hot block (96 deg. C) for 30 minutes.</li> <li>3. Centrifuge for 25 minutes at 11,000g.</li> <li>4. Decant fluid and filter.</li> <li>5. Repeat steps 1, 3 and 4 with the following extraction fluid: 0.2 M ammonium oxalate/oxalic acid, pH 3. For this step, agitate for 10 minutes in the dark (wrapped in aluminum foil)</li> <li>6. Repeat steps 1, 3 and 4 with DI water.</li> <li>7. Combine all decanted fluid and analyze for COCs*. This is the iron oxide fraction.</li> </ol>
Residual/Fe-sulfides	16 N HNO <sub>3</sub> + 30% H <sub>2</sub> O <sub>2</sub> + 12 N HCl	<ol style="list-style-type: none"> <li>1. Prepare same 1 g sample according to EPA 3050B, Mod. (SOP BAL-5030).</li> <li>2. Analyze for COCs*. This is the insoluble fraction.</li> </ol>

\*COCs = Arsenic, iron, manganese, sulfate, sulfide, and pH. (As, Fe, Mn, and pH will be analyzed by BAL for all extraction steps; Sulfate and sulfide will be measured by TA for the first three sequential extraction steps-only)

# **Appendix C: Laboratory Reports and Chain of Custody Forms**

# **Appendix C.1: Event 1 - Laboratory Reports and Chain of Custody Forms**



18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • info@brooksapplied.com

June 10, 2016

GSI Water Solutions, Inc.  
ATTN: Rod Struck  
55 SW Yamhill St. Suite 300  
Portland OR 97204  
rstruck@gsiws.com

RE: Project GSI-PR1601b

Client Project: Parcel 15 – POT (603.002.010)

Dear Mr. Struck,

On May 11<sup>th</sup>, 13<sup>th</sup>, and 20<sup>th</sup>, 2016, Brooks Applied Labs (BAL) received forty (40) soil/sediment samples. The temperature of samples received on May 20<sup>th</sup>, in Cooler 6, was 7.5 °C and exceeded the requirement of 0 – 4 °C ± 2 °C. All results were qualified **H** for this deviation. The temperature of all other shipments was within the acceptable limits. The samples were logged-in for the analyses of total arsenic (As), total iron (Fe), and arsenic speciation analysis according to the chain-of-custody forms. The arsenic speciation analyses were placed on hold until final approval by the client is granted. On June 7, 2016, the client cancelled potential arsenic speciation analyses on samples *TPS001-0.5\_1.5*, *TPS001F-1.5\_2.5*, and *TBS002-0.5\_1.5*. All samples were received and stored according to BAL SOPs and EPA methodology.

Samples for eventual arsenic speciation analysis, 5-step sequential extraction, or batch adsorption were processed under anoxic conditions. These samples were composited and aliquoted for the analyses listed on the COC form.

Samples for total As, Fe, and/or TestAmerica analyses were processed outside a glove box and were not under anoxic conditions.

#### Total Metals Quantitation by ICP-QQQ-MS

All solids were digested via modified EPA Method 3050B with a mix of concentrated nitric acid, hydrochloric acid, and hydrogen peroxide.

Trace metals were analyzed using inductively coupled plasma triple quadrupole mass spectrometry (ICP-QQQ-MS). The ICP-QQQ-MS uses advanced interference removal techniques to ensure accuracy of the sample results. For more information, please visit the *Interference Reduction Technology* section on our website, [brooksapplied.com](http://brooksapplied.com).

The results were not method blank corrected as described in the calculations section of the relevant BAL SOP(s) and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

Instances where the matrix spike/matrix spike duplicate (MS/MSD) sets were spiked at a concentration less than 25% of the native sample result, the recoveries were not reported (**NR**).

The As relative percent differences (RPD) of the method duplicates (DUP) performed on samples *MWS013-12.5-13.5* (1620033-04) and *TBS009-12-13* (1620033-14) were elevated. Both the samples

and the DUPs were re-analyzed, and the re-analyses confirmed the RPDs of 57% and 94%. The native sample results were qualified **M** for duplicate imprecision. All data was reported without further qualification and all other associated quality control sample results met the acceptance criteria.

The %TS result of method blank BLK4 was 0.10%, which was greater than the MRL. This caused the average of the blanks to be slightly greater than the limit; however, all results were greater than 10x the level of BLK4. No further corrective action was necessary.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information please see the *Report Information* page in your report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,

A handwritten signature in cursive script that reads "Tiffany Stilwater". The signature is written in black ink and is positioned above the typed name.

Tiffany Stilwater  
Client Services Manager  
tiffany@brooksapplied.com



## Report Information

### Laboratory Accreditation

BAL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BAL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksapplied.com/resources/certificates-permits/>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BAL</b>	Brooks Applied Labs	<b>MS</b>	matrix spike
<b>BLK</b>	method blank	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCB</b>	continuing calibration blank	<b>N/C</b>	not calculated
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>D</b>	dissolved fraction	<b>RPD</b>	relative percent difference
<b>DUP</b>	duplicate	<b>SCV</b>	secondary calibration verification
<b>IBL</b>	instrument blank	<b>SOP</b>	standard operating procedure
<b>ICV</b>	initial calibration verification	<b>SRM</b>	standard reference material
<b>MDL</b>	method detection limit	<b>T</b>	total fraction
<b>MRL</b>	method reporting limit	<b>TR</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>B</b>	Detected by the instrument, the result is > the MDL but $\leq$ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is $\leq$ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Applied Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BAL.



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
MWS00SR-10.5-11.5	1620033-01	Soil/Sediment	Sample	05/09/2016	05/11/2016
MWS008-11.5-12.5	1620033-02	Soil/Sediment	Sample	05/09/2016	05/11/2016
MWS011-13-14	1620033-03	Soil/Sediment	Sample	05/10/2016	05/11/2016
MWS013-12.5-13.5	1620033-04	Soil/Sediment	Sample	05/10/2016	05/11/2016
MWS010-12-13	1620033-05	Soil/Sediment	Sample	05/10/2016	05/11/2016
MWS007-9-10	1620033-06	Soil/Sediment	Sample	05/11/2016	05/13/2016
MWS009-11-12	1620033-07	Soil/Sediment	Sample	05/11/2016	05/13/2016
MWS012-11.5-12.5	1620033-08	Soil/Sediment	Sample	05/12/2016	05/13/2016
TBS006-13-14	1620033-09	Soil/Sediment	Sample	05/12/2016	05/13/2016
TBS004-12-13	1620033-10	Soil/Sediment	Sample	05/12/2016	05/13/2016
TBS008-13-14	1620033-11	Soil/Sediment	Sample	05/13/2016	05/13/2016
TBS009-7.4-8.4	1620033-12	Soil/Sediment	Sample	05/13/2016	05/13/2016
TBS009-8.8-9.8	1620033-13	Soil/Sediment	Sample	05/13/2016	05/13/2016
TBS009-12-13	1620033-14	Soil/Sediment	Sample	05/13/2016	05/13/2016
TBS001-11-12	1620033-15	Soil/Sediment	Sample	05/16/2016	05/18/2016
TBS002-12.5-13.5	1620033-16	Soil/Sediment	Sample	05/16/2016	05/18/2016
TBS003-14-15	1620033-17	Soil/Sediment	Sample	05/17/2016	05/18/2016
TBS005-17-18	1620033-18	Soil/Sediment	Sample	05/17/2016	05/18/2016
TPS002-0.5-1.5	1620033-19	Soil/Sediment	Sample	05/17/2016	05/18/2016
TBS007-16.5-17.5	1620033-20	Soil/Sediment	Sample	05/17/2016	05/18/2016
TPS001-0.5-1.5	1620033-21	Soil/Sediment	Sample	05/17/2016	05/18/2016
TPS001F-1.5-2.5	1620033-22	Soil/Sediment	Sample	05/17/2016	05/18/2016
TPS002-10.5-12.5	1620033-23	Soil/Sediment	Sample	05/17/2016	05/18/2016
TPS001TB-12-13	1620033-24	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD004B-0-10	1620033-25	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD003A-0-10	1620033-26	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD003A-40-50	1620033-27	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD003B-0-10	1620033-28	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD003B-40-50	1620033-29	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD002A-0-10	1620033-30	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD002A-36-46	1620033-31	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD002B-0-10	1620033-32	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD002B-40-50	1620033-33	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD001A-0-10	1620033-34	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD001A-40-50	1620033-35	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD001B-0-10	1620033-36	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD001B-40-50	1620033-37	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD004A-40-50	1620033-38	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD004B-40-50	1620033-39	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD004A-0-10	1620033-40	Soil/Sediment	Sample	05/18/2016	05/20/2016



## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
%TS	Soil/Sediment	SM 2540G	05/26/2016	06/03/2016	B161289	N/A
As	Soil/Sediment	EPA 6020B Mod	05/26/2016	05/31/2016	B161283	1600655
As	Soil/Sediment	EPA 6020B Mod	05/26/2016	06/07/2016	B161283	1600688
Fe	Soil/Sediment	EPA 6020B Mod	05/26/2016	05/31/2016	B161283	1600655





## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MWS007-9-10</b>										
1620033-06	%TS	Soil/Sediment	NA	84.68		0.004	0.01	%	B161289	N/A
1620033-06	As	Soil/Sediment	dry	2.69		0.041	0.122	mg/kg	B161283	1600655
1620033-06	Fe	Soil/Sediment	dry	12100		1.2	3.7	mg/kg	B161283	1600655
<b>MWS008-11.5-12.5</b>										
1620033-02	%TS	Soil/Sediment	NA	81.99		0.004	0.01	%	B161289	N/A
1620033-02	As	Soil/Sediment	dry	72.9		0.044	0.133	mg/kg	B161283	1600655
1620033-02	Fe	Soil/Sediment	dry	17000		1.3	4.0	mg/kg	B161283	1600655
<b>MWS009-11-12</b>										
1620033-07	%TS	Soil/Sediment	NA	77.88		0.004	0.01	%	B161289	N/A
1620033-07	As	Soil/Sediment	dry	1.23		0.045	0.136	mg/kg	B161283	1600655
1620033-07	Fe	Soil/Sediment	dry	14700		1.4	4.1	mg/kg	B161283	1600655
<b>MWS00SR-10.5-11.5</b>										
1620033-01	%TS	Soil/Sediment	NA	86.88		0.004	0.01	%	B161289	N/A
1620033-01	As	Soil/Sediment	dry	5.81		0.038	0.113	mg/kg	B161283	1600655
1620033-01	Fe	Soil/Sediment	dry	16500		1.1	3.4	mg/kg	B161283	1600655
<b>MWS010-12-13</b>										
1620033-05	%TS	Soil/Sediment	NA	74.10		0.004	0.01	%	B161289	N/A
1620033-05	As	Soil/Sediment	dry	237		0.047	0.140	mg/kg	B161283	1600655
1620033-05	Fe	Soil/Sediment	dry	20200		1.4	4.2	mg/kg	B161283	1600655
<b>MWS011-13-14</b>										
1620033-03	%TS	Soil/Sediment	NA	76.39		0.004	0.01	%	B161289	N/A
1620033-03	As	Soil/Sediment	dry	2.98		0.043	0.128	mg/kg	B161283	1600655
1620033-03	Fe	Soil/Sediment	dry	18000		1.3	3.8	mg/kg	B161283	1600655
<b>MWS012-11.5-12.5</b>										
1620033-08	%TS	Soil/Sediment	NA	79.01		0.004	0.01	%	B161289	N/A
1620033-08	As	Soil/Sediment	dry	0.936		0.043	0.130	mg/kg	B161283	1600655
1620033-08	Fe	Soil/Sediment	dry	21700		1.3	3.9	mg/kg	B161283	1600655



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MWS013-12.5-13.5</b>										
1620033-04	%TS	Soil/Sediment	NA	73.48		0.004	0.01	%	B161289	N/A
1620033-04	As	Soil/Sediment	dry	7.91	M	0.045	0.136	mg/kg	B161283	1600688
1620033-04	Fe	Soil/Sediment	dry	24100		1.4	4.1	mg/kg	B161283	1600655
<b>TBS001-11-12</b>										
1620033-15	%TS	Soil/Sediment	NA	84.45		0.004	0.01	%	B161289	N/A
1620033-15	As	Soil/Sediment	dry	12.7		0.042	0.126	mg/kg	B161283	1600655
1620033-15	Fe	Soil/Sediment	dry	24200		1.3	3.8	mg/kg	B161283	1600655
<b>TBS002-12.5-13.5</b>										
1620033-16	%TS	Soil/Sediment	NA	80.48		0.004	0.01	%	B161289	N/A
1620033-16	As	Soil/Sediment	dry	7.68		0.044	0.132	mg/kg	B161283	1600655
1620033-16	Fe	Soil/Sediment	dry	26200		1.3	4.0	mg/kg	B161283	1600655
<b>TBS003-14-15</b>										
1620033-17	%TS	Soil/Sediment	NA	72.82		0.004	0.01	%	B161289	N/A
1620033-17	As	Soil/Sediment	dry	3.92		0.049	0.147	mg/kg	B161283	1600655
1620033-17	Fe	Soil/Sediment	dry	23100		1.5	4.4	mg/kg	B161283	1600655
<b>TBS004-12-13</b>										
1620033-10	%TS	Soil/Sediment	NA	79.81		0.004	0.01	%	B161289	N/A
1620033-10	As	Soil/Sediment	dry	6.46		0.041	0.123	mg/kg	B161283	1600655
1620033-10	Fe	Soil/Sediment	dry	15300		1.2	3.7	mg/kg	B161283	1600655
<b>TBS005-17-18</b>										
1620033-18	%TS	Soil/Sediment	NA	72.82		0.004	0.01	%	B161289	N/A
1620033-18	As	Soil/Sediment	dry	1.55		0.046	0.137	mg/kg	B161283	1600655
1620033-18	Fe	Soil/Sediment	dry	16500		1.4	4.1	mg/kg	B161283	1600655
<b>TBS006-13-14</b>										
1620033-09	%TS	Soil/Sediment	NA	79.54		0.004	0.01	%	B161289	N/A
1620033-09	As	Soil/Sediment	dry	92.3		0.045	0.136	mg/kg	B161283	1600655
1620033-09	Fe	Soil/Sediment	dry	22500		1.4	4.1	mg/kg	B161283	1600655



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>TBS007-16.5-17.5</b>										
1620033-20	%TS	Soil/Sediment	NA	86.90		0.004	0.01	%	B161289	N/A
1620033-20	As	Soil/Sediment	dry	1.10		0.041	0.122	mg/kg	B161283	1600655
1620033-20	Fe	Soil/Sediment	dry	14600		1.2	3.7	mg/kg	B161283	1600655
<b>TBS008-13-14</b>										
1620033-11	%TS	Soil/Sediment	NA	71.64		0.004	0.01	%	B161289	N/A
1620033-11	As	Soil/Sediment	dry	4.60		0.051	0.152	mg/kg	B161283	1600655
1620033-11	Fe	Soil/Sediment	dry	19800		1.5	4.6	mg/kg	B161283	1600655
<b>TBS009-12-13</b>										
1620033-14	%TS	Soil/Sediment	NA	63.82		0.004	0.01	%	B161289	N/A
1620033-14	As	Soil/Sediment	dry	8.84	M	0.056	0.168	mg/kg	B161283	1600688
1620033-14	Fe	Soil/Sediment	dry	17000		1.7	5.0	mg/kg	B161283	1600655
<b>TBS009-7.4-8.4</b>										
1620033-12	%TS	Soil/Sediment	NA	88.70		0.004	0.01	%	B161289	N/A
1620033-12	As	Soil/Sediment	dry	1.52		0.039	0.117	mg/kg	B161283	1600655
1620033-12	Fe	Soil/Sediment	dry	11100		1.2	3.5	mg/kg	B161283	1600655
<b>TBS009-8.8-9.8</b>										
1620033-13	%TS	Soil/Sediment	NA	63.92		0.004	0.01	%	B161289	N/A
1620033-13	As	Soil/Sediment	dry	5.77		0.057	0.172	mg/kg	B161283	1600655
1620033-13	Fe	Soil/Sediment	dry	34600		1.7	5.2	mg/kg	B161283	1600655
<b>TPS001-0.5-1.5</b>										
1620033-21	%TS	Soil/Sediment	NA	91.81		0.004	0.01	%	B161289	N/A
1620033-21	As	Soil/Sediment	dry	3.93		0.039	0.117	mg/kg	B161283	1600655
1620033-21	Fe	Soil/Sediment	dry	20800		1.2	3.5	mg/kg	B161283	1600655
<b>TPS001F-1.5-2.5</b>										
1620033-22	%TS	Soil/Sediment	NA	90.47		0.004	0.01	%	B161289	N/A
1620033-22	As	Soil/Sediment	dry	27.5		0.038	0.114	mg/kg	B161283	1600655
1620033-22	Fe	Soil/Sediment	dry	24800		1.1	3.4	mg/kg	B161283	1600655



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>TPS001TB-12-13</b>										
1620033-24	%TS	Soil/Sediment	NA	75.86	H	0.004	0.01	%	B161289	N/A
1620033-24	As	Soil/Sediment	dry	1.67	H	0.050	0.149	mg/kg	B161283	1600655
1620033-24	Fe	Soil/Sediment	dry	13300	H	1.5	4.5	mg/kg	B161283	1600655
<b>TPS002-0.5-1.5</b>										
1620033-19	%TS	Soil/Sediment	NA	94.02		0.004	0.01	%	B161289	N/A
1620033-19	As	Soil/Sediment	dry	2.97		0.039	0.117	mg/kg	B161283	1600655
1620033-19	Fe	Soil/Sediment	dry	20200		1.2	3.5	mg/kg	B161283	1600655
<b>TPS002-10.5-12.5</b>										
1620033-23	%TS	Soil/Sediment	NA	77.28		0.004	0.01	%	B161289	N/A
1620033-23	As	Soil/Sediment	dry	4.80		0.043	0.129	mg/kg	B161283	1600655
1620033-23	Fe	Soil/Sediment	dry	18400		1.3	3.9	mg/kg	B161283	1600655
<b>WCTSD001A-0-10</b>										
1620033-34	%TS	Soil/Sediment	NA	71.52		0.004	0.01	%	B161289	N/A
1620033-34	As	Soil/Sediment	dry	2.28		0.050	0.151	mg/kg	B161283	1600655
1620033-34	Fe	Soil/Sediment	dry	15800		1.5	4.5	mg/kg	B161283	1600655
<b>WCTSD001A-40-50</b>										
1620033-35	%TS	Soil/Sediment	NA	74.27		0.004	0.01	%	B161289	N/A
1620033-35	As	Soil/Sediment	dry	1.78		0.047	0.140	mg/kg	B161283	1600655
1620033-35	Fe	Soil/Sediment	dry	18100		1.4	4.2	mg/kg	B161283	1600655
<b>WCTSD001B-0-10</b>										
1620033-36	%TS	Soil/Sediment	NA	70.52		0.004	0.01	%	B161289	N/A
1620033-36	As	Soil/Sediment	dry	13.6		0.045	0.136	mg/kg	B161283	1600655
1620033-36	Fe	Soil/Sediment	dry	24100		1.4	4.1	mg/kg	B161283	1600655
<b>WCTSD001B-40-50</b>										
1620033-37	%TS	Soil/Sediment	NA	49.02		0.004	0.01	%	B161289	N/A
1620033-37	As	Soil/Sediment	dry	12.6		0.074	0.221	mg/kg	B161283	1600655
1620033-37	Fe	Soil/Sediment	dry	31600		2.2	6.6	mg/kg	B161283	1600655



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTSD002A-0-10</b>										
1620033-30	%TS	Soil/Sediment	NA	68.70	H	0.004	0.01	%	B161289	N/A
1620033-30	As	Soil/Sediment	dry	10.3	H	0.052	0.157	mg/kg	B161283	1600655
1620033-30	Fe	Soil/Sediment	dry	19800	H	1.6	4.7	mg/kg	B161283	1600655
<b>WCTSD002A-36-46</b>										
1620033-31	%TS	Soil/Sediment	NA	75.31	H	0.004	0.01	%	B161289	N/A
1620033-31	As	Soil/Sediment	dry	1.84	H	0.048	0.144	mg/kg	B161283	1600655
1620033-31	Fe	Soil/Sediment	dry	13800	H	1.4	4.3	mg/kg	B161283	1600655
<b>WCTSD002B-0-10</b>										
1620033-32	%TS	Soil/Sediment	NA	65.74	H	0.004	0.01	%	B161289	N/A
1620033-32	As	Soil/Sediment	dry	9.08	H	0.055	0.166	mg/kg	B161283	1600655
1620033-32	Fe	Soil/Sediment	dry	22500	H	1.7	5.0	mg/kg	B161283	1600655
<b>WCTSD002B-40-50</b>										
1620033-33	%TS	Soil/Sediment	NA	68.13	H	0.004	0.01	%	B161289	N/A
1620033-33	As	Soil/Sediment	dry	2.43	H	0.050	0.151	mg/kg	B161283	1600655
1620033-33	Fe	Soil/Sediment	dry	21800	H	1.5	4.5	mg/kg	B161283	1600655
<b>WCTSD003A-0-10</b>										
1620033-26	%TS	Soil/Sediment	NA	71.13	H	0.004	0.01	%	B161289	N/A
1620033-26	As	Soil/Sediment	dry	4.49	H	0.045	0.136	mg/kg	B161283	1600655
1620033-26	Fe	Soil/Sediment	dry	18700	H	1.4	4.1	mg/kg	B161283	1600655
<b>WCTSD003A-40-50</b>										
1620033-27	%TS	Soil/Sediment	NA	76.21	H	0.004	0.01	%	B161289	N/A
1620033-27	As	Soil/Sediment	dry	4.41	H	0.047	0.142	mg/kg	B161283	1600655
1620033-27	Fe	Soil/Sediment	dry	18300	H	1.4	4.3	mg/kg	B161283	1600655
<b>WCTSD003B-0-10</b>										
1620033-28	%TS	Soil/Sediment	NA	76.50	H	0.004	0.01	%	B161289	N/A
1620033-28	As	Soil/Sediment	dry	5.01	H	0.043	0.128	mg/kg	B161283	1600655
1620033-28	Fe	Soil/Sediment	dry	20500	H	1.3	3.8	mg/kg	B161283	1600655



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTSD003B-40-50</b>										
1620033-29	%TS	Soil/Sediment	NA	66.39	H	0.004	0.01	%	B161289	N/A
1620033-29	As	Soil/Sediment	dry	3.27	H	0.056	0.168	mg/kg	B161283	1600655
1620033-29	Fe	Soil/Sediment	dry	25200	H	1.7	5.0	mg/kg	B161283	1600655
<b>WCTSD004A-0-10</b>										
1620033-40	%TS	Soil/Sediment	NA	69.99		0.004	0.01	%	B161289	N/A
1620033-40	As	Soil/Sediment	dry	2.53		0.046	0.139	mg/kg	B161283	1600655
1620033-40	Fe	Soil/Sediment	dry	20000		1.4	4.2	mg/kg	B161283	1600655
<b>WCTSD004A-40-50</b>										
1620033-38	%TS	Soil/Sediment	NA	69.03		0.004	0.01	%	B161289	N/A
1620033-38	As	Soil/Sediment	dry	2.60		0.054	0.161	mg/kg	B161283	1600655
1620033-38	Fe	Soil/Sediment	dry	22100		1.6	4.8	mg/kg	B161283	1600655
<b>WCTSD004B-0-10</b>										
1620033-25	%TS	Soil/Sediment	NA	74.30	H	0.004	0.01	%	B161289	N/A
1620033-25	As	Soil/Sediment	dry	6.21	H	0.044	0.131	mg/kg	B161283	1600655
1620033-25	Fe	Soil/Sediment	dry	25200	H	1.3	3.9	mg/kg	B161283	1600655
<b>WCTSD004B-40-50</b>										
1620033-39	%TS	Soil/Sediment	NA	71.83		0.004	0.01	%	B161289	N/A
1620033-39	As	Soil/Sediment	dry	3.72		0.050	0.150	mg/kg	B161283	1600655
1620033-39	Fe	Soil/Sediment	dry	31300		1.5	4.5	mg/kg	B161283	1600655



## Accuracy & Precision Summary

Batch: B161283  
 Lab Matrix: Soil/Sediment  
 Method: EPA 6020B Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161283-BS1	Laboratory Fortified Blank, (1623003)						
	As		50.00	50.12	mg/kg	100% 75-125	
	Fe		500.0	516.2	mg/kg	103% 75-125	
B161283-BS2	Laboratory Fortified Blank, (1623003)						
	As		50.00	48.78	mg/kg	98% 75-125	
	Fe		500.0	496.1	mg/kg	99% 75-125	
B161283-SRM1	Certified Reference Material, (NC00378, CRM052-50G Loamy Clay 1 - 3050B)						
	As		227.0	232.2	mg/kg	102% 75-125	
	Fe		4300	4606	mg/kg	107% 75-125	
B161283-SRM2	Certified Reference Material, (NC00378, CRM052-50G Loamy Clay 1 - 3050B)						
	As		227.0	232.4	mg/kg	102% 75-125	
	Fe		4300	4524	mg/kg	105% 75-125	
B161283-DUP1	Duplicate, (1620033-04)						
	Fe	24080		24900	mg/kg		3% 30
B161283-DUP5	Duplicate, (1620033-04)						
	As	7.911		14.15	mg/kg		57% 30
B161283-MS1	Matrix Spike, (1620033-04)						
	Fe	24080	683.6	22860	mg/kg	NR 70-130	
B161283-MS5	Matrix Spike, (1620033-04)						
	As	7.911	68.36	77.49	mg/kg	102% 70-130	
B161283-MSD1	Matrix Spike Duplicate, (1620033-04)						
	Fe	24080	716.4	27020	mg/kg	NR 70-130	N/C 30
B161283-MSD5	Matrix Spike Duplicate, (1620033-04)						
	As	7.911	71.64	78.53	mg/kg	99% 70-130	3% 30



## Accuracy & Precision Summary

**Batch:** B161283  
**Lab Matrix:** Soil/Sediment  
**Method:** EPA 6020B Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161283-DUP2	Duplicate, (1620033-14)						
	Fe	17020		19490	mg/kg		14% 30
B161283-DUP6	Duplicate, (1620033-14)						
	As	8.841		3.176	mg/kg		94% 30
B161283-MS2	Matrix Spike, (1620033-14)						
	Fe	17020	796.7	20000	mg/kg	NR 70-130	
B161283-MS6	Matrix Spike, (1620033-14)						
	As	8.841	79.67	85.07	mg/kg	96% 70-130	
B161283-MSD2	Matrix Spike Duplicate, (1620033-14)						
	Fe	17020	778.8	21030	mg/kg	NR 70-130	N/C 30
B161283-MSD6	Matrix Spike Duplicate, (1620033-14)						
	As	8.841	77.88	79.95	mg/kg	91% 70-130	5% 30
B161283-DUP3	Duplicate, (1620033-21)						
	As	3.932		4.915	mg/kg		22% 30
	Fe	20770		19650	mg/kg		6% 30
B161283-MS3	Matrix Spike, (1620033-21)						
	As	3.932	57.69	62.44	mg/kg	101% 70-130	
	Fe	20770	576.9	18370	mg/kg	NR 70-130	
B161283-MSD3	Matrix Spike Duplicate, (1620033-21)						
	As	3.932	51.55	56.51	mg/kg	102% 70-130	0.6% 30
	Fe	20770	515.5	20100	mg/kg	NR 70-130	N/C 30
B161283-DUP4	Duplicate, (1620033-29)						
	As	3.272		3.632	mg/kg		10% 30
	Fe	25160		24350	mg/kg		3% 30





## Accuracy & Precision Summary

**Batch:** B161283  
**Lab Matrix:** Soil/Sediment  
**Method:** EPA 6020B Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B161283-MS4</b>	<b>Matrix Spike, (1620033-29)</b>						
	As	3.272	71.16	73.52	mg/kg	99% 70-130	
	Fe	25160	711.6	23060	mg/kg	NR 70-130	
<b>B161283-MSD4</b>	<b>Matrix Spike Duplicate, (1620033-29)</b>						
	As	3.272	74.08	75.88	mg/kg	98% 70-130	0.7% 30
	Fe	25160	740.8	25630	mg/kg	NR 70-130	N/C 30



## Accuracy & Precision Summary

**Batch:** B161289  
**Lab Matrix:** Soil/Sediment  
**Method:** SM 2540G

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161289-DUP1	Duplicate, (1620033-03) %TS	76.39		77.66	%		2% 15
B161289-DUP2	Duplicate, (1620033-06) %TS	84.68		84.78	%		0.1% 15
B161289-DUP3	Duplicate, (1620033-19) %TS	94.02		94.35	%		0.4% 15
B161289-DUP4	Duplicate, (1620033-29) %TS	66.39		66.27	%		0.2% 15



## Method Blanks & Reporting Limits

**Batch:** B161283  
**Matrix:** Soil/Sediment  
**Method:** EPA 6020B Mod  
**Analyte:** As

Sample	Result	Units		
B161283-BLK1	0.012	mg/kg wet		
B161283-BLK2	0.008	mg/kg wet		
B161283-BLK3	0.010	mg/kg wet		
B161283-BLK4	0.002	mg/kg wet		
<b>Average:</b>	<b>0.008</b>		<b>Standard Deviation:</b>	<b>0.004</b>
<b>Limit:</b>	<b>0.105</b>		<b>Limit:</b>	<b>0.035</b>
			<b>MDL:</b>	<b>0.035</b>
			<b>MRL:</b>	<b>0.105</b>

**Analyte:** Fe

Sample	Result	Units		
B161283-BLK1	0.1	mg/kg wet		
B161283-BLK2	0.1	mg/kg wet		
B161283-BLK3	0.1	mg/kg wet		
B161283-BLK4	0.2	mg/kg wet		
<b>Average:</b>	<b>0.1</b>		<b>Standard Deviation:</b>	<b>0.1</b>
<b>Limit:</b>	<b>3.2</b>		<b>Limit:</b>	<b>1.1</b>
			<b>MDL:</b>	<b>1.0</b>
			<b>MRL:</b>	<b>3.2</b>



## Method Blanks & Reporting Limits

**Batch:** B161289  
**Matrix:** Soil/Sediment  
**Method:** SM 2540G  
**Analyte:** %TS

Sample	Result	Units
B161289-BLK1	0.00	%
B161289-BLK2	-0.01	%
B161289-BLK3	-0.01	%
B161289-BLK4	0.10	%

**Average:** 0.02  
**Limit:** 0.01

**MDL:** 0.004  
**MRL:** 0.01



## Sample Containers

<b>Lab ID:</b> 1620033-01		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/09/2016	
<b>Sample:</b> MWS00SR-10.5-11.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/11/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz	not provided	none	none		Cooler
B	EXTRA_VOL No analysis	4oz Glass (Full)	N/a	none	none		Cooler
C	EXTRA_VOL No analysis	4oz glass jar (over half full)	n/a	none	none		Cooler
D	EXTRA_VOL	4oz jar	n/a	none	none		Cooler

**Comments:** Archive sample

<b>Lab ID:</b> 1620033-02		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/09/2016	
<b>Sample:</b> MWS008-11.5-12.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/11/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz	not provided	none	none		Cooler
B	EXTRA_VOL No analysis	4oz glass jar (FULL)	n/a	none	none		Cooler
C	EXTRA_VOL	4oz jar	n/a	none	none		Cooler

**Comments:** Archive

<b>Lab ID:</b> 1620033-03		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/10/2016	
<b>Sample:</b> MWS011-13-14		<b>Sample Type:</b> Sample				<b>Received:</b> 05/11/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz	not provided	none	none		Cooler
B	EXTRA_VOL No analysis	4oz glass jar (FULL)	N/A	none	none		Cooler
C	EXTRA_VOL	4oz jar	N/A	none	none		Cooler

**Comments:** Archive



## Sample Containers

<b>Lab ID:</b> 1620033-04		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/10/2016	
<b>Sample:</b> MWS013-12.5-13.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/11/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none	none		Cooler
B	Jar HDPE - Sp	4oz jar	not provided	none	none		Cooler
C	EXTRA_VOL No analysis	4oz glass (FULL)	N/A	none	none		Cooler
D	EXTRA_VOL No analysis	8oz HDPE (full)	N/A	none	none		Cooler
E	EXTRA_VOL No analysis	16oz Glass (FULL)	N/A	none	none		Cooler
F	EXTRA_VOL No analysis	4oz glass (over half full)	N/A	none	none		Cooler
G	EXTRA_VOL	4oz HDPE	n/A	none	none		Cooler

**Comments:** Archive

<b>Lab ID:</b> 1620033-05		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/10/2016	
<b>Sample:</b> MWS010-12-13		<b>Sample Type:</b> Sample				<b>Received:</b> 05/11/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none	none		Cooler
B	Jar HDPE - Sp	4oz jar	not provided	none	none		Cooler



## Sample Containers

**Lab ID:** 1620033-06

**Sample:** MWS007-9-10

**Report Matrix:** Soil/Sediment

**Sample Type:** Sample

**Collected:** 05/11/2016

**Received:** 05/13/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 3
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 3
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 3
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 3
E	EXTRA_VOL	16oz glass jar (full)	not provided	none			Cooler 3
F	EXTRA_VOL	4oz glass jar (over half full)	not provided	none			Cooler 3
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 3

**Comments:** TOC



## Sample Containers

**Lab ID:** 1620033-07

**Sample:** MWS009-11-12

**Report Matrix:** Soil/Sediment

**Sample Type:** Sample

**Collected:** 05/11/2016

**Received:** 05/13/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 2
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 2
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 2
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 2
E	EXTRA_VOL	16oz glass jar (full)	not provided	none			Cooler 2
F	EXTRA_VOL	4oz glass jar (over half full)	not provided	none			Cooler 2
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 2

**Comments:** TOC





## Sample Containers

Lab ID: 1620033-08		Report Matrix: Soil/Sediment				Collected: 05/12/2016
Sample: MWS012-11.5-12.5		Sample Type: Sample				Received: 05/13/2016
Des	Container	Size	Lot	Preservation	P-Lot	pH Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none		Cooler 3
B	Jar HDPE - Sp	4oz jar	not provided	none		Cooler 3
C	EXTRA_VOL	8oz HDPE (full)	not provided	none		Cooler 3
D	EXTRA_VOL	4 oz jar	not provided	none		Cooler 3
E	EXTRA_VOL	16oz glass jar (full)	not provided	none		Cooler 3
F	EXTRA_VOL	4oz glass jar (over half full)	not provided	none		Cooler 3
G	EXTRA_VOL	4oz glass jar (full)	not provided	none		Cooler 3

**Comments:** TOC

Lab ID: 1620033-09		Report Matrix: Soil/Sediment				Collected: 05/12/2016
Sample: TBS006-13-14		Sample Type: Sample				Received: 05/13/2016
Des	Container	Size	Lot	Preservation	P-Lot	pH Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none		Cooler 3
D	EXTRA_VOL	4 oz jar	not provided	none		Cooler 3
G	EXTRA_VOL	4oz glass jar (full)	not provided	none		Cooler 3

**Comments:** TOC



## Sample Containers

<b>Lab ID:</b> 1620033-10		<b>Report Matrix:</b> Soil/Sediment			<b>Collected:</b> 05/12/2016	
<b>Sample:</b> TBS004-12-13		<b>Sample Type:</b> Sample			<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none		Cooler 3
D	EXTRA_VOL	4 oz jar	not provided	none		Cooler 3
G	EXTRA_VOL	4oz glass jar (full)	not provided	none		Cooler 3

**Comments:** TOC

<b>Lab ID:</b> 1620033-11		<b>Report Matrix:</b> Soil/Sediment			<b>Collected:</b> 05/13/2016	
<b>Sample:</b> TBS008-13-14		<b>Sample Type:</b> Sample			<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none		Cooler 2
D	EXTRA_VOL	4 oz jar	not provided	none		Cooler 2
G	EXTRA_VOL	4oz glass jar (full)	not provided	none		Cooler 2

**Comments:** TOC

<b>Lab ID:</b> 1620033-12		<b>Report Matrix:</b> Soil/Sediment			<b>Collected:</b> 05/13/2016	
<b>Sample:</b> TBS009-7.4-8.4		<b>Sample Type:</b> Sample			<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none		Cooler 2
B	EXTRA_VOL	4oz glass jar (FULL)	not provided	none		Cooler 2
C	EXTRA_VOL	4oz Glass (Full)	not provided	none		Cooler 2
D	EXTRA_VOL	4 oz jar	not provided	none		Cooler 2

**Comments:** ARCHIVE



## Sample Containers

<b>Lab ID:</b> 1620033-13		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/13/2016	
<b>Sample:</b> TBS009-8.8-9.8		<b>Sample Type:</b> Sample				<b>Received:</b> 05/13/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 2
B	EXTRA_VOL	4oz glass jar (FULL)	not provided	none			Cooler 2
C	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 2
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 2

**Comments:** ARCHIVE

<b>Lab ID:</b> 1620033-14		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/13/2016	
<b>Sample:</b> TBS009-12-13		<b>Sample Type:</b> Sample				<b>Received:</b> 05/13/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 2
B	EXTRA_VOL	4oz glass jar (FULL)	not provided	none			Cooler 2
C	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 2
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 2

**Comments:** ARCHIVE

<b>Lab ID:</b> 1620033-15		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/16/2016	
<b>Sample:</b> TBS001-11-12		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 4
B	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 4
C	EXTRA_VOL	4 oz jar	not provided	none			Cooler 4

**Comments:** ARCHIVE



## Sample Containers

<b>Lab ID:</b> 1620033-16		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/16/2016	
<b>Sample:</b> TBS002-12.5-13.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 4
B	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 4
C	EXTRA_VOL	4 oz jar	not provided	none			Cooler 4

**Comments:** ARCHIVE

<b>Lab ID:</b> 1620033-17		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TBS003-14-15		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 4
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 4
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 4
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 4
E	EXTRA_VOL	16oz glass jar (full)	not provided	none			Cooler 4
F	EXTRA_VOL	4oz glass jar (over half full)	not provided	none			Cooler 4
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 4

**Comments:** TOC



## Sample Containers

<b>Lab ID:</b> 1620033-18		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TBS005-17-18		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 4
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 4
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 4
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 4
E	EXTRA_VOL	16oz glass jar (full)	not provided	none			Cooler 4
F	EXTRA_VOL	4oz glass jar (over half full)	not provided	none			Cooler 4
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 4

**Comments:** TOC

<b>Lab ID:</b> 1620033-19		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TPS002-0.5-1.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 4
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 4
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 4
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 4
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 4
H	EXTRA_VOL	4oz glass jar (half full or more)	not provided	none			Cooler 4

**Comments:** Dioxins



## Sample Containers

**Lab ID:** 1620033-20  
**Sample:** TBS007-16.5-17.5

**Report Matrix:** Soil/Sediment  
**Sample Type:** Sample

**Collected:** 05/17/2016  
**Received:** 05/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 5
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 5
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 5
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 5
E	EXTRA_VOL	16oz glass jar (full)	not provided	none			Cooler 5
F	EXTRA_VOL	4oz glass jar (over half full)	not provided	none			Cooler 5
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 5

**Comments:** TOC

**Lab ID:** 1620033-21  
**Sample:** TPS001-0.5-1.5

**Report Matrix:** Soil/Sediment  
**Sample Type:** Sample

**Collected:** 05/17/2016  
**Received:** 05/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 5
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 5
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 5
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 5
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 5
H	EXTRA_VOL	4oz glass jar (half full or more)	not provided	none			Cooler 5

**Comments:** Dioxins



## Sample Containers

<b>Lab ID:</b> 1620033-22		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TPS001F-1.5-2.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 5
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 5
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 5
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 5
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 5
H	EXTRA_VOL	4oz glass jar (half full or more)	not provided	none			Cooler 5

**Comments:** Dioxins

<b>Lab ID:</b> 1620033-23		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TPS002-10.5-12.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 4
B	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 4
C	EXTRA_VOL	4 oz jar	not provided	none			Cooler 4

**Comments:** ARCHIVE



## Sample Containers

**Lab ID:** 1620033-24

**Sample:** TPS001TB-12-13

**Report Matrix:** Soil/Sediment

**Sample Type:** Sample

**Collected:** 05/18/2016

**Received:** 05/20/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
C	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL			none			Cooler 6

**Comments:** TOC/pentachlorophenol/pH

**Lab ID:** 1620033-25

**Sample:** WCTSD004B-0-10

**Report Matrix:** Soil/Sediment

**Sample Type:** Sample

**Collected:** 05/18/2016

**Received:** 05/20/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide





## Sample Containers

<b>Lab ID:</b> 1620033-26		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD003A-0-10		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8oz Jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide

<b>Lab ID:</b> 1620033-27		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD003A-40-50		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8 oz Jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide



## Sample Containers

<b>Lab ID:</b> 1620033-28		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD003B-0-10		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8oz Jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide

<b>Lab ID:</b> 1620033-29		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD003B-40-50		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8oz jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide



## Sample Containers

<b>Lab ID:</b> 1620033-30		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD002A-0-10		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8oz jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide

<b>Lab ID:</b> 1620033-31		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD002A-36-46		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8oz jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide



## Sample Containers

<b>Lab ID:</b> 1620033-32		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD002B-0-10		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8oz jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide

<b>Lab ID:</b> 1620033-33		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD002B-40-50		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide



## Sample Containers

<b>Lab ID:</b> 1620033-34		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD001A-0-10		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
B	EXTRA_VOL	8oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide

<b>Lab ID:</b> 1620033-35		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD001A-40-50		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
B	EXTRA_VOL	8oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide



## Sample Containers

<b>Lab ID:</b> 1620033-36		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD001B-0-10		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
B	EXTRA_VOL	8oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide

<b>Lab ID:</b> 1620033-37		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD001B-40-50		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
B	EXTRA_VOL	8oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide



## Sample Containers

<b>Lab ID:</b> 1620033-38		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD004A-40-50		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide

<b>Lab ID:</b> 1620033-39		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD004B-40-50		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide



## Sample Containers

**Lab ID:** 1620033-40

**Sample:** WCTSD004A-0-10

**Report Matrix:** Soil/Sediment

**Sample Type:** Sample

**Collected:** 05/18/2016

**Received:** 05/20/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide





## Shipping Containers

### Cooler

**Received:** May 11, 2016 14:30  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 5.1 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#4

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 2

**Received:** May 13, 2016 17:05  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 5.8 °C

**Description:** Cooler 2  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#2

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 3

**Received:** May 13, 2016 17:05  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 4.0 °C

**Description:** Cooler 3  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#2

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 4

**Received:** May 18, 2016 10:45  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 4.1 °C

**Description:** Cooler 4  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#2

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 5

**Received:** May 18, 2016 10:45  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 2.1 °C

**Description:** Cooler 5  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#2

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 6

**Received:** May 20, 2016 9:30  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 7.5 °C

**Description:** Cooler 6  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#4

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 7

**Received:** May 20, 2016 9:30  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 6.5 °C

**Description:** Cooler 7  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#4

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

### Chain of Custody Record

Field Sampler(s): GSI BAL Report 1620033

<b>Client Contact</b>		<b>For Lab Use Only:</b>		<b>Laboratory</b>										<b>Lab PM</b>			
Project Name: Parcel 15 - POT		SDG: _____		Brooks Applied Labs					TestAmerica					Brooks- Ben Wozniak- 206-753-6158			
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Analysis Requested</b>											TestAmerica - Christabel Escarez- 253.248.4975		
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No		Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans		Sulfide	Grain Size
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C															
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____															
Analysis Turnaround Time: <input checked="" type="checkbox"/> 21 days (STD)																	
<input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days *																	
<input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *																	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***	Sample Specific Notes:
MNS005R-10.5-11.5	5/19/16	1445	G	S	1	X	X	X	X				X	X	X	X				
MWS008-11.5-12.5	↓	1650	G	S	1	X	X	X	X				X	X						
MNS011-13-14	5/19/16	925	G	S	1	X	X	X	X				X	X						
MNS013-12.5-13.5	↓	1135	G	S	1	X	X	X	X	X	X	X	X	X			X	X		
MWS010-12-13	↓	1505	G	S	1	X	X	X	X	X	X	X	X	X			X	X		

<b>Possible Hazard Identification:</b>		<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>	
Are samples hazardous? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input checked="" type="checkbox"/> Archive for 1 yr + contact GSI	
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic			
If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.			

Received by: <u>Martha M. Donald</u>	Date/Time: <u>5/11/16 10:00</u>	Relinquished by: <u>Peter Pedregon-GSI</u>	Date/Time: <u>5-11-16: 1000</u>
Received by: <u>[Signature]</u>	Date/Time: <u>5/11/16 14:30</u>	Relinquished by:	Date/Time:
Received in Laboratory by:	Date/Time:	Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input checked="" type="checkbox"/> Other	Tracking #:

**Special Instructions/QC Requirements**

\* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.

\*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.

\*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.

Please contact Cindy Ryals at 971-200-8531 with any questions.

*See SPP tables A-3+17-5*



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

Field Sampler(s): BAL Report 1620033

# Chain of Custody Record

<b>Client Contact</b>		<b>For Lab Use Only:</b>				<b>Laboratory</b>										<b>Lab PM</b>																								
Project Name: Parcel 15 - POT		SDG: _____				Brooks Applied Labs					TestAmerica					Brooks- Ben Wozniak- 206-753-6158																								
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No				<table border="1"> <tr> <th colspan="10">Analysis Requested</th> </tr> <tr> <th>Anoxic Homogenization*</th> <th>Arsenic</th> <th>Iron</th> <th>Total Solids</th> <th>Arsenic Speciation - As (III)/As(V)</th> <th>Sequential Extraction</th> <th>Batch Adsorption</th> <th>Archive (frozen)**</th> <th>Total Organic Carbon</th> <th>Pentachlorophenol and pH</th> <th>Dioxin/Furans</th> <th>Sulfide</th> <th>Grain Size</th> <th>Archive Only (Frozen)***</th> </tr> </table>											Analysis Requested										Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***
Analysis Requested																																								
Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***																											
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No																																						
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																																						
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																																						
Analysis Turnaround Time:																																								
<input type="checkbox"/> 21 days (STD) <input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input checked="" type="checkbox"/> 3 day * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *																																								

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***	Sample Specific Notes:
MWS007-9-10	5/11/16	940	G	S	1	X	X	X	X	X	X	X	X	X						
MWS009-11-12	↓	1435	↓	↓	↓	X	X	X	X	X	X	X	X	X				X	X	
MWS012-11.5-12.5	5/12/16	1000	↓	↓	↓	X	X	X	X	X	X	X	X	X				X	X	
TBS006-13-14	↓	1325	↓	↓	↓	X	X	X	X				X	X						
TBS004-12-13	↓	1640	↓	↓	↓	X	X	X	X				X	X						
TBS008-13-14	5/13/16	915	G	S	1	X	X	X	X				X	X						
TBS009-7.4-8.4	↓	1215	↓	↓	↓	X	X	X	X				X	X	X				X	
TBS009-8.8-9.8	5/13/16	1220	G	S	1	X	X	X	X				X	X	X				X	
TBS009-12-13	↓	1225	↓	↓	↓	X	X	X	X				X	X	X				X	

**Possible Hazard Identification:**  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client     Disposal by Lab     Archive for 1 yr + contact GSI

Received by: Mark McDonald Date/Time: 5/13/16 1525  
 Relinquished by: Renee Fawcett, GSI Date/Time: 5/13/16 1525

Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received in Laboratory by: Jan Ziballin Date/Time: 5/13/16 17:05  
 Shipped Via:  UPS  Fed-Ex  USPS  Other    Tracking #: \_\_\_\_\_

**Special Instructions/QC Requirements**  
 \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.  
 \*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.  
 \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

*see SAP tables BWA-3 & BWA-4  
A-3 + A-4*



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

# Chain of Custody Record

Field Sampler(s): GSI BAL Report 1620033

<b>Client Contact</b>		<b>For Lab Use Only:</b>		<b>Laboratory</b>										<b>Lab PM</b>			
Project Name: Parcel 15 - POT		SDG: _____		Brooks Applied Labs					TestAmerica					Brooks - Ben Wozniak - 206-753-6158			
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No		Analysis Requested													
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No		Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C															
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____															
Analysis Turnaround Time:		see contract															
<input type="checkbox"/> 21 days (STD)																	
<input type="checkbox"/> 14 days *																	
<input type="checkbox"/> 7 days *																	
<input type="checkbox"/> 5 days *																	
<input type="checkbox"/> 3 day *																	
<input type="checkbox"/> 2 days *																	
<input type="checkbox"/> 1 day *																	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***	Sample Specific Notes:
TBS001 - 10.5-11.5 <sup>RF</sup> 11-12	5/16/16	1115	G	S	1	X	X	X	X				X	X						
TBS002 - 12.5 - 13.5	↓	1400	↓	↓	↓	X	X	X	X				X	X						
TBS003 - 14 - 15	5/17/16	925	↓	↓	↓	X	X	X	X	X	X	X	X	X			X	X		
<del>TBS003 - 14 - 15</del>	<del>5/17/16</del>	<del>1000</del>																		
TBS005 - 17-18	5/17/16	1155	G	S	2	X	X	X	X	X	X	X	X	X			X	X		
TPS002 - 0.5 - 1.5	↓	1410	↓	↓	↓	X	X	X	X	X	X	X	X	X	X	X	X	X		no sulfide + grain size <sup>RF</sup>
TBS007 - 16.5 - 17.5	↓	1520	↓	↓	↓	X	X	X	X	X	X	X	X	X			X	X		
TPS001 - 0.5 - 1.5	↓	1720	↓	↓	↓	X	X	X	X	X	X	X	X	X	X	X				
TPS001F - 1.5 - 2.5	↓	1730	↓	↓	↓	X	X	X	X	X	X	X	X	X	X	X				
TPS002 - 10.5 - 12.5	5/17/16	1530	G	S	1	X	X	X	X				X	X	X					

<b>Possible Hazard Identification:</b>		<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>	
Are samples hazardous? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input checked="" type="checkbox"/> Archive for 1 yr + contact GSI	
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic		Erin Hughes 5/18/16 8:15	
If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.		Relinquished by: <u>[Signature]</u> Date/Time: 5/18/16 10:45	
Received by: <u>Chris Busch</u>	Date/Time: 5/18/16 8:15am	Relinquished by: <u>[Signature]</u>	Date/Time: 5/18/16 10:45
Received by: <u>[Signature]</u>	Date/Time: 5/18/16 10:45	Relinquished by: _____	Date/Time: _____
Received in Laboratory by: _____	Date/Time: _____	Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other	Tracking #: _____

**Special Instructions/QC Requirements**

\* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.

\*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.

\*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.

Please contact Cindy Ryals at 971-200-8531 with any questions.



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

page 1 of 2

# Chain of Custody Record

Field Sampler(s): GSI BAL Report 1620033

<b>Client Contact</b>		<b>For Lab Use Only:</b>				<b>Laboratory</b>											<b>Lab PM</b>								
Project Name: Parcel 15 - POT		SDG: _____				Brooks Applied Labs					TestAmerica						Brooks- Ben Wozniak- 206-753-6158								
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No				<b>Analysis Requested</b>																			
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No				Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***						
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																							
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																							
Analysis Turnaround Time:																									
<input type="checkbox"/> 21 days (STD) <input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *		<input type="checkbox"/> 21 days (STD) <input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *																							
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.													Sample Specific Notes:						
<del>FB</del> TPS001TB-12-13		5/18/16	9:20		soil	1	X	X	X	X															
WCTSD004B-0-10		5/18/16	10:15		sed	1	X	X	X	X															
WCTSD003A-0-10		5/18/16	11:00		sed	1	X	X	X	X															
WCTSD003A-40-50		5/18/16	11:05		sed	1	X	X	X	X															
WCTSD003B-0-10		5/18/16	11:10		sed	1	X	X	X	X															
WCTSD003B-40-50		5/18/16	11:30		sed	1	X	X	X	X															
WCTSD002A-0-10			12:00				X	X	X	X															
WCTSD002A-36-46			12:10				X	X	X	X															
WCTSD002B-0-10			12:20				X	X	X	X															
WCTSD002B-40-50			12:30				X	X	X	X															
WCTSD001A-0-10			12:40				X	X	X	X															
WCTSD001A-40-50			12:45				X	X	X	X															
WCTSD001B-0-10			12:50				X	X	X	X															
<b>Possible Hazard Identification:</b>						<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>																			
Are samples hazardous? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input checked="" type="checkbox"/> Archive for 1 yr + contract GSI																			
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic																									
If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.																									
Received by: <i>[Signature]</i>		Date/Time: 5/20/16 8:15am				Relinquished by: <i>[Signature]</i> GSI		Date/Time: 5/20/16 8:15																	
Received by: _____		Date/Time: _____				Relinquished by: <i>[Signature]</i>		Date/Time: 5/20/16 9:56																	
Received in Laboratory by: <i>[Signature]</i>		Date/Time: 5/20/16 9:30				Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input checked="" type="checkbox"/> Other		Tracking #: _____																	
<b>Special Instructions/QC Requirements</b>																									
* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.																									
** Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.																									
*** Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.																									
Please contact Cindy Ryals at 971-200-8531 with any questions.																									



55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

page 2 of 2

# Chain of Custody Record

Field Sampler(s): GSI BAL Report 1620033

Client Contact		For Lab Use Only:					Laboratory										Lab PM			
Project Name: Parcel 15 - POT		SDG: _____					Brooks Applied Labs					TestAmerica					Brooks- Ben Wozniak- 206-753-6158			
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No					Analysis Requested													
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No					Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																		
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																		TestAmerica - Christabel Escarez- 253.248.4975
Analysis Turnaround Time: <input type="checkbox"/> 21 days (STD)																				
<input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day * <i>see contract</i>																				Sample Specific Notes:
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.														
WCTSD001B-40-50		5/18/16	1255	G	sed	1	X	X	X	X				X	X			X		
NCTSD004A-40-50		↓	1340	↓	↓	↓	X	X	X	X				X	X	X		X		
NCTSD004B-40-50		↓	1345	↓	↓	↓	X	X	X	X				X	X	X		X		
NCTSD004A-0-10		↓	1350	↓	↓	↓	X	X	X	X				X	X	X		X		

**Possible Hazard Identification:**  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client  Disposal by Lab  Archive for 1yr + contact GSI

Received by: <i>Chris Hughes</i>	Date/Time: 5/20/16 8:15am	Relinquished by: <i>Ben Wozniak GSI</i>	Date/Time: 5/20/16 8:15
Received by: _____	Date/Time: _____	Relinquished by: <i>Chris Hughes</i>	Date/Time: 5/20/16 9:56am
Received in Laboratory by: <i>GSI</i>	Date/Time: 5/20/16 9:30	Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other	Tracking #: _____

**Special Instructions/QC Requirements**  
 \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.  
 \*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.  
 \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • [info@brooksapplied.com](mailto:info@brooksapplied.com)

June 17, 2016

GSI Water Solutions, Inc.  
ATTN: Rod Struck  
55 SW Yamhill St. Suite 300  
Portland OR 97204  
[rstruck@gsiws.com](mailto:rstruck@gsiws.com)

RE: Project GSI-PR1601b

Client Project: Parcel 15 – POT (603.002.010)

Dear Mr. Struck,

On May 13 and 18, 2016, Brooks Applied Labs (BAL) received twelve (12) aqueous samples. The samples were logged-in for the analyses of dissolved arsenic (As), dissolved iron (Fe), dissolved manganese (Mn), total recoverable As, Fe speciation, and As speciation according to the chain-of-custody (COC) forms. All samples requiring filtration were field-filtered by the client prior to reception at BAL. All samples were received and stored according to BAL SOPs and EPA methodology.

*Dissolved Metals Quantitation by ICP-QQQ-MS*

All aqueous samples for dissolved metals were directly analyzed for As, Fe, and Mn by inductively coupled plasma triple quadrupole mass spectrometry (ICP-QQQ-MS). The ICP-QQQ-MS determinative method uses advanced interference removal techniques to ensure accuracy of the sample results. For more information, please visit the *Interference Reduction Technology* section on our website, [brooksapplied.com](http://brooksapplied.com).

*Total Recoverable Metals Quantitation by ICP-QQQ-MS*

All aqueous samples for total recoverable metals were digested on a hotblock apparatus with aliquots of with nitric and hydrochloric acids. The resulting digests were analyzed for As via ICP-QQQ-MS.

Comparison of the obtained total recoverable As results with the associated dissolved As results indicated that each total recoverable result was either greater than its associated dissolved As result, within accepted error (RPD  $\leq 20\%$ ) of its associated dissolved As result, or within  $\pm$  the method reporting limit (MRL) of its associated dissolved As result (as is the case with sample *TBGW009-E1*). Consequently, no corrective action or qualification of the obtained total recoverable or dissolved As results was necessary.

*Arsenic Speciation by IC-ICP-CRC-MS*

All aqueous samples for As speciation were analyzed using ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS). In accordance with the project

agreement, As speciation was defined as dissolved arsenite [As(III)], arsenate [As(V)], monomethylarsonic acid [MMAs], and dimethylarsinic acid [DMAs]. Arsenic species are chromatographically separated on an ion exchange column and then quantified using inductively coupled plasma collision reaction cell mass spectrometry (ICP-CRC-MS); for more information on this determinative technique, please visit the *Interference Reduction Technology* section on our website.

Upon completion of the total recoverable As, dissolved As, and As speciation analyses, it was identified that the sum of arsenic species obtained for sample *TBGW007-E1* (347µg/L) agreed with the associated total recoverable As result (373µg/L) but not with the dissolved As result (202µg/L). Consequently, the dissolved As fraction was reanalyzed and the original result was confirmed. No further corrective action was necessary, but the discrepancy associated with the dissolved As result obtained for this sample should be taken into consideration when evaluating the reported data.

#### Iron Speciation by Colorimetry and ICP-QQQ-MS

All aqueous samples for Fe(II) quantitation were analyzed directly by colorimetry. As requested by the client, Fe(III) was operationally defined as the difference between the dissolved Fe results obtained by ICP-QQQ-MS and the Fe(II) results obtained by colorimetry.

As part of the Fe(II) analyses by colorimetry, BAL analyzes Fe(III) conversion check spikes on each submitted sample to identify whether Fe(III) is converted to Fe(II) during the applied method. The conversion check spikes indicated that reduction of Fe(III) to Fe(II) occurred for all samples in this report (ranging from 14% to 90%; data not included in the *Accuracy & Precision Summary* tables). No qualification of the data was necessary, but the presented data is reflective of reducing sample matrices.

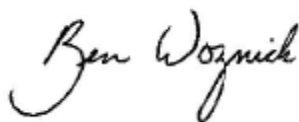
All results were *not* method blank corrected, as described in the calculations section of the relevant BAL SOPs, and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

Instances where the matrix spike/matrix spike duplicate (MS/MSD) sets were spiked at a concentration less than 25% of the native sample result, the recoveries were not reported (**NR**) and the MSD RPD is not calculated (**NC**), as they are not valid indicators of data quality.

All data was reported without qualification, aside from concentration qualifiers, and all other associated quality control results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information, please see the *Report Information* page in your report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,



Ben Wozniak  
Project Manager  
[ben@brooksapplied.com](mailto:ben@brooksapplied.com)





## Report Information

### Laboratory Accreditation

BAL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BAL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksapplied.com/resources/certificates-permits/>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BAL</b>	Brooks Applied Labs	<b>MS</b>	matrix spike
<b>BLK</b>	method blank	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCB</b>	continuing calibration blank	<b>N/C</b>	not calculated
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>D</b>	dissolved fraction	<b>RPD</b>	relative percent difference
<b>DUP</b>	duplicate	<b>SCV</b>	secondary calibration verification
<b>IBL</b>	instrument blank	<b>SOP</b>	standard operating procedure
<b>ICV</b>	initial calibration verification	<b>SRM</b>	standard reference material
<b>MDL</b>	method detection limit	<b>T</b>	total fraction
<b>MRL</b>	method reporting limit	<b>TR</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>J</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J-1</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Applied Labs, those found in the EPA [SOW\\_ILM03.0](#), Exhibit B, Section III, pg. B-18, and the [USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review](#); USEPA; January 2010. These supersede all previous qualifiers ever employed by BAL.



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
TBGW006-E1	1621005-01	Water	Sample	05/12/2016	05/13/2016
TBGW004-E1	1621005-02	Water	Sample	05/12/2016	05/13/2016
OF #2-E1	1621005-03	Water	Sample	05/12/2016	05/13/2016
OF #3-E1	1621005-04	Water	Sample	05/12/2016	05/13/2016
TBGW008-E1	1621005-05	Water	Sample	05/13/2016	05/13/2016
TBGW009-E1	1621005-06	Water	Sample	05/13/2016	05/13/2016
TBGW006-E1	1621005-07	Water	Sample	05/12/2016	05/13/2016
TBGW004-E1	1621005-08	Water	Sample	05/12/2016	05/13/2016
OF #2-E1	1621005-09	Water	Sample	05/12/2016	05/13/2016
OF #3-E1	1621005-10	Water	Sample	05/12/2016	05/13/2016
TBGW008-E1	1621005-11	Water	Sample	05/13/2016	05/13/2016
TBGW009-E1	1621005-12	Water	Sample	05/13/2016	05/13/2016
TBGW001-E1	1621005-13	Water	Sample	05/16/2016	05/18/2016
TBGW001-E1	1621005-14	Water	Sample	06/16/2016	05/18/2016
TBGW002-E1	1621005-15	Water	Sample	05/16/2016	05/18/2016
TBGW002-E1	1621005-16	Water	Sample	05/16/2016	05/18/2016
TBGW003-E1	1621005-17	Water	Sample	05/17/2016	05/18/2016
TBGW003-E1	1621005-18	Water	Sample	05/17/2016	05/18/2016
TBGW005-E1	1621005-19	Water	Sample	05/17/2016	05/18/2016
TBGW005-E1	1621005-20	Water	Sample	05/17/2016	05/18/2016
TBGW007-E1	1621005-21	Water	Sample	05/17/2016	05/18/2016
TBGW007-E1	1621005-22	Water	Sample	05/17/2016	05/18/2016
TBGW507-E1	1621005-23	Water	Sample	05/17/2016	05/18/2016
TBGW507-E1	1621005-24	Water	Sample	05/17/2016	05/18/2016
TBGW001-E1	1621005-25	Water	Sample	05/16/2016	05/13/2016
TBGW002-E1	1621005-26	Water	Sample	05/19/2016	05/13/2016



## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
As	Water	EPA 1638 Mod	05/25/2016	06/07/2016	B161376	1600688
As	Water	EPA 1638 Mod	05/25/2016	05/31/2016	B161266	1600649
As(III)	Water	IC-ICP-MS	06/02/2016	06/07/2016	B161362	1600676
As(V)	Water	IC-ICP-MS	06/02/2016	06/07/2016	B161362	1600676
DMAs	Water	IC-ICP-MS	06/02/2016	06/07/2016	B161362	1600676
MMAs	Water	IC-ICP-MS	06/02/2016	06/07/2016	B161362	1600676
As	Water	EPA 1638 Mod	05/24/2016	05/25/2016	B161271	1600632
Fe	Water	EPA 1638 Mod	05/24/2016	05/25/2016	B161271	1600632
Fe(II)	Water	SM 3500-Fe B mod.	05/18/2016	05/18/2016	B161204	1600593
Mn	Water	EPA 1638 Mod	05/24/2016	05/25/2016	B161271	1600632



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>OF #2-E1</b>										
1621005-03	As	Water	TR	734		0.12	0.40	µg/L	B161266	1600649
1621005-09	As	Water	D	109		0.152	1.01	µg/L	B161271	1600632
1621005-09	Fe	Water	D	1270		7.07	21.5	µg/L	B161271	1600632
1621005-09	Mn	Water	D	2060		0.530	1.59	µg/L	B161271	1600632
<b>OF #3-E1</b>										
1621005-04	As	Water	TR	1300		0.12	0.40	µg/L	B161266	1600649
1621005-10	As	Water	D	444		0.152	1.01	µg/L	B161271	1600632
1621005-10	Fe	Water	D	446		7.07	21.5	µg/L	B161271	1600632
1621005-10	Mn	Water	D	2740		0.530	1.59	µg/L	B161271	1600632
<b>TBGW001-E1</b>										
1621005-13	As	Water	TR	151		0.12	0.40	µg/L	B161266	1600649
1621005-25	As	Water	D	102		0.152	1.01	µg/L	B161271	1600632
1621005-25	Fe	Water	D	3480		7.07	21.5	µg/L	B161271	1600632
1621005-25	Mn	Water	D	1060		0.530	1.59	µg/L	B161271	1600632
<b>TBGW002-E1</b>										
1621005-15	As	Water	TR	295		0.12	0.40	µg/L	B161266	1600649
1621005-26	As	Water	D	317		0.152	1.01	µg/L	B161271	1600632
1621005-26	Fe	Water	D	19200		7.07	21.5	µg/L	B161271	1600632
1621005-26	Mn	Water	D	6290		0.530	1.59	µg/L	B161271	1600632
<b>TBGW003-E1</b>										
1621005-17	As	Water	TR	364		0.12	0.40	µg/L	B161266	1600649
1621005-18	As	Water	D	424		0.152	1.01	µg/L	B161271	1600632
1621005-18	As(III)	Water	D	81.8		0.500	5.00	µg/L	B161362	1600676
1621005-18	As(V)	Water	D	317		0.500	5.00	µg/L	B161362	1600676
1621005-18	DMAs	Water	D	≤ 0.750	U	0.750	5.25	µg/L	B161362	1600676
1621005-18	Fe	Water	D	127000		7.07	21.5	µg/L	B161271	1600632
1621005-18	Fe(II)	Water	D	60600		500	1500	µg/L	B161204	1600593
1621005-18	Fe(III)	Water	D	66200		500	1500	µg/L	[CALC]	N/A
1621005-18	MMAAs	Water	D	1.33	J	0.750	5.75	µg/L	B161362	1600676
1621005-18	Mn	Water	D	3690		0.530	1.59	µg/L	B161271	1600632



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>TBGW004-E1</b>										
1621005-02	As	Water	TR	22500		24.2	48.5	µg/L	B161376	1600688
1621005-08	As	Water	D	16100		0.152	1.01	µg/L	B161271	1600632
1621005-08	Fe	Water	D	104000		7.07	21.5	µg/L	B161271	1600632
1621005-08	Mn	Water	D	3490		0.530	1.59	µg/L	B161271	1600632
<b>TBGW005-E1</b>										
1621005-19	As	Water	TR	116		0.12	0.40	µg/L	B161266	1600649
1621005-20	As	Water	D	80.3		0.152	1.01	µg/L	B161271	1600632
1621005-20	As(III)	Water	D	2.62		0.100	1.00	µg/L	B161362	1600676
1621005-20	As(V)	Water	D	74.4		0.100	1.00	µg/L	B161362	1600676
1621005-20	DMAs	Water	D	≤ 0.150	U	0.150	1.05	µg/L	B161362	1600676
1621005-20	Fe	Water	D	215000		7.07	21.5	µg/L	B161271	1600632
1621005-20	Fe(II)	Water	D	140000		1000	3000	µg/L	B161204	1600593
1621005-20	Fe(III)	Water	D	74500		1000	3000	µg/L	[CALC]	N/A
1621005-20	MMAAs	Water	D	0.366	J	0.150	1.15	µg/L	B161362	1600676
1621005-20	Mn	Water	D	5220		0.530	1.59	µg/L	B161271	1600632
<b>TBGW006-E1</b>										
1621005-01	As	Water	TR	228		0.12	0.40	µg/L	B161266	1600649
1621005-07	As	Water	D	200		0.152	1.01	µg/L	B161271	1600632
1621005-07	Fe	Water	D	147000		7.07	21.5	µg/L	B161271	1600632
1621005-07	Mn	Water	D	2760		0.530	1.59	µg/L	B161271	1600632
<b>TBGW007-E1</b>										
1621005-21	As	Water	TR	373		0.12	0.40	µg/L	B161266	1600649
1621005-22	As	Water	D	202		0.152	1.01	µg/L	B161271	1600632
1621005-22	As(III)	Water	D	73.6		0.200	2.00	µg/L	B161362	1600676
1621005-22	As(V)	Water	D	272		0.200	2.00	µg/L	B161362	1600676
1621005-22	DMAs	Water	D	≤ 0.300	U	0.300	2.10	µg/L	B161362	1600676
1621005-22	Fe	Water	D	135000		7.07	21.5	µg/L	B161271	1600632
1621005-22	Fe(II)	Water	D	73700		500	1500	µg/L	B161204	1600593
1621005-22	Fe(III)	Water	D	61100		500	1500	µg/L	[CALC]	N/A
1621005-22	MMAAs	Water	D	1.10	J	0.300	2.30	µg/L	B161362	1600676
1621005-22	Mn	Water	D	4820		0.530	1.59	µg/L	B161271	1600632



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>TBGW008-E1</b>										
1621005-05	As	Water	TR	1670		0.12	0.40	µg/L	B161266	1600649
1621005-11	As	Water	D	1500		0.152	1.01	µg/L	B161271	1600632
1621005-11	Fe	Water	D	61000		7.07	21.5	µg/L	B161271	1600632
1621005-11	Mn	Water	D	1330		0.530	1.59	µg/L	B161271	1600632
<b>TBGW009-E1</b>										
1621005-06	As	Water	TR	2.40		0.12	0.40	µg/L	B161266	1600649
1621005-12	As	Water	D	3.32		0.152	1.01	µg/L	B161271	1600632
1621005-12	Fe	Water	D	3740		7.07	21.5	µg/L	B161271	1600632
1621005-12	Mn	Water	D	310		0.530	1.59	µg/L	B161271	1600632
<b>TBGW507-E1</b>										
1621005-23	As	Water	TR	205		0.12	0.40	µg/L	B161266	1600649
1621005-24	As	Water	D	212		0.152	1.01	µg/L	B161271	1600632
1621005-24	As(III)	Water	D	37.2		0.200	2.00	µg/L	B161362	1600676
1621005-24	As(V)	Water	D	199		0.200	2.00	µg/L	B161362	1600676
1621005-24	DMAs	Water	D	≤ 0.300	U	0.300	2.10	µg/L	B161362	1600676
1621005-24	Fe	Water	D	135000		7.07	21.5	µg/L	B161271	1600632
1621005-24	Fe(II)	Water	D	73500		1000	3000	µg/L	B161204	1600593
1621005-24	Fe(III)	Water	D	61400		1000	3000	µg/L	[CALC]	N/A
1621005-24	MMAs	Water	D	0.730	J	0.300	2.30	µg/L	B161362	1600676
1621005-24	Mn	Water	D	4810		0.530	1.59	µg/L	B161271	1600632



## Accuracy & Precision Summary

Batch: B161204  
Lab Matrix: Water  
Method: SM 3500-Fe B mod.

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161204-DUP1	Duplicate, (1621005-24) Fe(II)	73480		76820	µg/L		4% 25
B161204-MS1	Matrix Spike, (1621005-24) Fe(II)	73480	100000	175600	µg/L	102% 75-125	
B161204-MSD1	Matrix Spike Duplicate, (1621005-24) Fe(II)	73480	100000	171300	µg/L	98% 75-125	2% 25



## Accuracy & Precision Summary

Batch: B161266  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161266-BS2	Laboratory Fortified Blank, (1622030) As		500.0	441.2	µg/L	88% 75-125	
B161266-SRM1	Certified Reference Material, (NC00147, TMDA 70.2 Reference Standard - Bottle4) As		42.20	38.56	µg/L	91% 75-125	
B161266-SRM2	Certified Reference Material, (NC00147, TMDA 70.2 Reference Standard - Bottle4) As		42.20	38.73	µg/L	92% 75-125	
B161266-DUP1	Duplicate, (1621005-01) As	227.6		234.9	µg/L		3% 20
B161266-MS1	Matrix Spike, (1621005-01) As	227.6	202.0	424.1	µg/L	97% 75-125	
B161266-MSD1	Matrix Spike Duplicate, (1621005-01) As	227.6	202.0	433.4	µg/L	102% 75-125	2% 20
B161266-DUP2	Duplicate, (1621005-19) As	115.8		117.7	µg/L		2% 20
B161266-MS2	Matrix Spike, (1621005-19) As	115.8	202.0	303.0	µg/L	93% 75-125	
B161266-MSD2	Matrix Spike Duplicate, (1621005-19) As	115.8	202.0	294.2	µg/L	88% 75-125	3% 20





## Accuracy & Precision Summary

Batch: B161271  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B161271-SRM1</b>	<b>Certified Reference Material, (NC00370, T191 as SRM)</b>						
	As		4.080	4.052	µg/L	99% 75-125	
	Fe		83.00	85.80	µg/L	103% 75-125	
	Mn		27.00	27.31	µg/L	101% 75-125	
<b>B161271-DUP1</b>	<b>Duplicate, (1621005-07)</b>						
	As	200.1		204.7	µg/L		2% 20
	Fe	147400		154700	µg/L		5% 20
	Mn	2759		2869	µg/L		4% 20
<b>B161271-MS1</b>	<b>Matrix Spike, (1621005-07)</b>						
	As	200.1	252.5	450.2	µg/L	99% 75-125	
	Fe	147400	2525	152000	µg/L	NR 75-125	
	Mn	2759	252.5	3092	µg/L	NR 75-125	
<b>B161271-MSD1</b>	<b>Matrix Spike Duplicate, (1621005-07)</b>						
	As	200.1	252.5	445.1	µg/L	97% 75-125	1% 20
	Fe	147400	2525	155600	µg/L	NR 75-125	N/C 20
	Mn	2759	252.5	3106	µg/L	NR 75-125	N/C 20
<b>B161271-DUP2</b>	<b>Duplicate, (1621005-26)</b>						
	As	316.9		315.8	µg/L		0.3% 20
	Fe	19200		19300	µg/L		0.5% 20
	Mn	6293		6314	µg/L		0.3% 20
<b>B161271-MS2</b>	<b>Matrix Spike, (1621005-26)</b>						
	As	316.9	252.5	564.4	µg/L	98% 75-125	
	Fe	19200	2525	21530	µg/L	NR 75-125	
	Mn	6293	252.5	6452	µg/L	NR 75-125	
<b>B161271-MSD2</b>	<b>Matrix Spike Duplicate, (1621005-26)</b>						
	As	316.9	252.5	569.4	µg/L	100% 75-125	0.9% 20
	Fe	19200	2525	22020	µg/L	NR 75-125	N/C 20
	Mn	6293	252.5	6516	µg/L	NR 75-125	N/C 20



## Accuracy & Precision Summary

Batch: B161362  
 Lab Matrix: Water  
 Method: IC-ICP-MS

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B161362-BS1</b>	<b>Laboratory Fortified Blank, (NC00024)</b>						
	As(III)		5.000	5.195	µg/L	104% 75-125	
	As(V)		5.000	4.825	µg/L	96% 75-125	
	DMAs		3.198	3.082	µg/L	96% 75-125	
<b>B161362-BS2</b>	<b>Laboratory Fortified Blank, (1545039)</b>						
	MMAs		5.270	4.642	µg/L	88% 75-125	
<b>B161362-DUP7</b>	<b>Duplicate, (1621005-24)</b>						
	As(III)	37.15		36.29	µg/L		2% 25
	As(V)	198.7		195.2	µg/L		2% 25
	DMAs	ND		ND	µg/L		N/C 25
	MMAs	0.730		0.942	µg/L		25% 25
<b>B161362-MS7</b>	<b>Matrix Spike, (1621005-24)</b>						
	As(III)	37.15	100.0	150.7	µg/L	114% 75-125	
	As(V)	198.7	100.0	307.7	µg/L	109% 75-125	
	DMAs	ND	104.2	115.1	µg/L	110% 75-125	
	MMAs	0.730	117.3	131.1	µg/L	111% 75-125	
<b>B161362-MSD7</b>	<b>Matrix Spike Duplicate, (1621005-24)</b>						
	As(III)	37.15	100.0	149.5	µg/L	112% 75-125	0.8% 25
	As(V)	198.7	100.0	304.9	µg/L	106% 75-125	0.9% 25
	DMAs	ND	104.2	113.8	µg/L	109% 75-125	1% 25
	MMAs	0.730	117.3	130.3	µg/L	110% 75-125	0.6% 25



## Accuracy & Precision Summary

**Batch:** B161376  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161376-BS1	Laboratory Fortified Blank, (1622029) As		200.0	203.8	µg/L	102% 75-125	
B161376-BS2	Laboratory Fortified Blank, (1622030) As		500.0	493.8	µg/L	99% 75-125	
B161376-SRM1	Certified Reference Material, (NC00147, TMDA 70.2 Reference Standard - Bottle4) As		42.20	40.98	µg/L	97% 75-125	
B161376-DUP1	Analytical Duplicate, (1621005-02) As	22550		22600	µg/L		0.2% 20
B161376-PS1	Post Spike, (1621005-02) As	22550	10100	32280	µg/L	96% 75-125	

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



**Client PM:** Rod Struck

## Method Blanks & Reporting Limits

**Batch:** B161204  
**Matrix:** Water  
**Method:** SM 3500-Fe B mod.  
**Analyte:** Fe(II)

Sample	Result	Units
B161204-BLK1	2.4	µg/L
B161204-BLK2	0.0	µg/L
B161204-BLK3	-2.4	µg/L
B161204-BLK4	0.0	µg/L

**Average:** 0.0

**Limit:** 15.0

**MDL:** 5.0

**MRL:** 15.0



## Method Blanks & Reporting Limits

**Batch:** B161266  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units		
B161266-BLK1	0.09	µg/L		
B161266-BLK2	0.06	µg/L		
B161266-BLK3	0.05	µg/L		
B161266-BLK4	0.03	µg/L		
	<b>Average:</b> 0.06		<b>Standard Deviation:</b> 0.03	<b>MDL:</b> 0.12
	<b>Limit:</b> 0.40		<b>Limit:</b> 0.12	<b>MRL:</b> 0.40



## Method Blanks & Reporting Limits

**Batch:** B161271  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units		
B161271-BLK1	0.194	µg/L		
B161271-BLK2	0.127	µg/L		
B161271-BLK3	0.113	µg/L		
B161271-BLK4	0.092	µg/L		
<b>Average:</b>	<b>0.132</b>		<b>Standard Deviation:</b>	<b>0.044</b>
<b>Limit:</b>	<b>1.000</b>		<b>Limit:</b>	<b>0.150</b>
			<b>MDL:</b>	<b>0.150</b>
			<b>MRL:</b>	<b>1.00</b>

**Analyte:** Fe

Sample	Result	Units		
B161271-BLK1	-0.18	µg/L		
B161271-BLK2	-0.36	µg/L		
B161271-BLK3	-0.33	µg/L		
B161271-BLK4	-0.56	µg/L		
<b>Average:</b>	<b>-0.36</b>		<b>Standard Deviation:</b>	<b>0.16</b>
<b>Limit:</b>	<b>21.25</b>		<b>Limit:</b>	<b>7.00</b>
			<b>MDL:</b>	<b>7.00</b>
			<b>MRL:</b>	<b>21.2</b>

**Analyte:** Mn

Sample	Result	Units		
B161271-BLK1	-0.013	µg/L		
B161271-BLK2	0.030	µg/L		
B161271-BLK3	0.019	µg/L		
B161271-BLK4	0.052	µg/L		
<b>Average:</b>	<b>0.022</b>		<b>Standard Deviation:</b>	<b>0.027</b>
<b>Limit:</b>	<b>1.575</b>		<b>Limit:</b>	<b>0.525</b>
			<b>MDL:</b>	<b>0.525</b>
			<b>MRL:</b>	<b>1.58</b>



## Method Blanks & Reporting Limits

**Batch:** B161362  
**Matrix:** Water  
**Method:** IC-ICP-MS  
**Analyte:** As(III)

Sample	Result	Units	
B161362-BLK1	0.00	µg/L	
B161362-BLK2	0.00	µg/L	
B161362-BLK3	0.00	µg/L	
B161362-BLK4	0.00	µg/L	
<b>Average:</b>	<b>0.000</b>		<b>MDL: 0.002</b>
<b>Limit:</b>	<b>0.020</b>		<b>MRL: 0.020</b>

**Analyte:** As(V)

Sample	Result	Units	
B161362-BLK1	-0.0005	µg/L	
B161362-BLK2	-0.001	µg/L	
B161362-BLK3	-0.0007	µg/L	
B161362-BLK4	-0.0006	µg/L	
<b>Average:</b>	<b>-0.001</b>		<b>MDL: 0.002</b>
<b>Limit:</b>	<b>0.020</b>		<b>MRL: 0.020</b>

**Analyte:** DMAs

Sample	Result	Units	
B161362-BLK1	0.00	µg/L	
B161362-BLK2	0.00	µg/L	
B161362-BLK3	0.00	µg/L	
B161362-BLK4	0.00	µg/L	
<b>Average:</b>	<b>0.000</b>		<b>MDL: 0.003</b>
<b>Limit:</b>	<b>0.021</b>		<b>MRL: 0.021</b>



## Method Blanks & Reporting Limits

**Analyte:** MMAs

<b>Sample</b>	<b>Result</b>	<b>Units</b>	
B161362-BLK1	0.00	µg/L	
B161362-BLK2	0.00	µg/L	
B161362-BLK3	0.00	µg/L	
B161362-BLK4	0.00	µg/L	
<b>Average:</b>	<b>0.000</b>		<b>MDL:</b> 0.003
<b>Limit:</b>	<b>0.023</b>		<b>MRL:</b> 0.023





## Method Blanks & Reporting Limits

**Batch:** B161376  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units		
B161376-BLK1	0.04	µg/L		
B161376-BLK2	0.03	µg/L		
B161376-BLK3	0.03	µg/L		
B161376-BLK4	0.03	µg/L		
<b>Average:</b> 0.03			<b>Standard Deviation:</b> 0.01	<b>MDL:</b> 0.05
<b>Limit:</b> 0.10			<b>Limit:</b> 0.05	<b>MRL:</b> 0.10



## Sample Containers

<b>Lab ID:</b> 1621005-01 <b>Sample:</b> TBGW006-E1 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b>	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1615017	<b>Collected:</b> 05/12/2016 <b>Received:</b> 05/13/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Lab ID:</b> 1621005-02 <b>Sample:</b> TBGW004-E1 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b>	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1615017	<b>Collected:</b> 05/12/2016 <b>Received:</b> 05/13/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Lab ID:</b> 1621005-03 <b>Sample:</b> OF #2-E1 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b>	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1615017	<b>Collected:</b> 05/12/2016 <b>Received:</b> 05/13/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Lab ID:</b> 1621005-04 <b>Sample:</b> OF #3-E1 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b>	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1615017	<b>Collected:</b> 05/12/2016 <b>Received:</b> 05/13/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Lab ID:</b> 1621005-05 <b>Sample:</b> TBGW008-E1 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b>	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1615017	<b>Collected:</b> 05/13/2016 <b>Received:</b> 05/13/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Lab ID:</b> 1621005-06 <b>Sample:</b> TBGW009-E1 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b>	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1615017	<b>Collected:</b> 05/13/2016 <b>Received:</b> 05/13/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 1



## Sample Containers

<b>Lab ID:</b> 1621005-07 <b>Sample:</b> TBGW006-E1 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b> not provided	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1615017	<b>Collected:</b> 05/12/2016 <b>Received:</b> 05/13/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Comments:</b> field filtered					
<b>Lab ID:</b> 1621005-08 <b>Sample:</b> TBGW004-E1 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b> not provided	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1615017	<b>Collected:</b> 05/12/2016 <b>Received:</b> 05/13/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Comments:</b> field filtered					
<b>Lab ID:</b> 1621005-09 <b>Sample:</b> OF #2-E1 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b> not provided	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1615017	<b>Collected:</b> 05/12/2016 <b>Received:</b> 05/13/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Comments:</b> field filtered					
<b>Lab ID:</b> 1621005-10 <b>Sample:</b> OF #3-E1 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b> not provided	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1615017	<b>Collected:</b> 05/12/2016 <b>Received:</b> 05/13/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Comments:</b> field filtered					
<b>Lab ID:</b> 1621005-11 <b>Sample:</b> TBGW008-E1 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b> not provided	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1615017	<b>Collected:</b> 05/13/2016 <b>Received:</b> 05/13/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Comments:</b> field filtered					



## Sample Containers

Lab ID:	Sample:	Des	Container	Size	Lot	Report Matrix:	Sample Type:	Preservation	P-Lot	Collected:	Received:	pH	Ship. Cont.
1621005-12	TBGW009-E1	A	Bottle HDPE ICP-W	250mL	not provided	Water	Sample	1% HNO3 (BAL)	1615017	05/13/2016	05/13/2016	<2	Cooler 1
<b>Comments:</b> field filtered													
1621005-13	TBGW001-E1	A	Bottle HDPE ICP-W	125ml	16-0094	Water	Sample	1% HNO3 (BAL)	1615017	05/16/2016	05/18/2016	<2	Cooler 3
1621005-14	TBGW001-E1	A	Bottle HDPE ICP-W	125ml	16-0094	Water	Sample	1% HNO3 (BAL)	1615017	06/16/2016	05/18/2016	<2	Cooler 3
1621005-15	TBGW002-E1	A	Bottle HDPE ICP-W	125ml	16-0094	Water	Sample	1% HNO3 (BAL)	1615017	05/16/2016	05/18/2016	<2	Cooler 3
1621005-16	TBGW002-E1	A	Bottle HDPE ICP-W	125ml	16-0094	Water	Sample	1% HNO3 (BAL)	1615017	05/16/2016	05/18/2016	<2	Cooler 3
1621005-17	TBGW003-E1	A	Bottle HDPE ICP-W	125ml	16-0094	Water	Sample	1% HNO3 (BAL)	1615017	05/17/2016	05/18/2016	<2	Cooler 3



## Sample Containers

<b>Lab ID:</b> 1621005-18		<b>Report Matrix:</b> Water				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TBGW003-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125ml	16-0094	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Bottle HDPE As-SP	6ml vacutainer	not provided	EDTA	not provided		Cooler 3
C	EXTRA_VOL	6ml vacutainer	not provided	EDTA	not provided		Cooler 3
D	Cent Tube 15mL Fe-Sp	40ml glass vial	not provided	1.6ml 6N degassed HCl (PP)	1615059		Cooler 3
E	EXTRA_VOL	40ml glass vial	not provided	1.6ml 6N degassed HCl (PP)	1615059		Cooler 3

<b>Lab ID:</b> 1621005-19		<b>Report Matrix:</b> Water				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TBGW005-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125ml	16-0094	1% HNO3 (BAL)	1615017	<2	Cooler 3

<b>Lab ID:</b> 1621005-20		<b>Report Matrix:</b> Water				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TBGW005-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125ml	16-0094	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Bottle HDPE As-SP	6ml vacutainer	not provided	EDTA	not provided		Cooler 3
C	EXTRA_VOL	6ml vacutainer	not provided	EDTA	not provided		Cooler 3
D	Cent Tube 15mL Fe-Sp	40ml glass vial	not provided	1.6ml 6N degassed HCl (PP)	1615059		Cooler 3
E	EXTRA_VOL	40ml glass vial	not provided	1.6ml 6N degassed HCl (PP)	1615059		Cooler 3



## Sample Containers

<b>Lab ID:</b> 1621005-21		<b>Report Matrix:</b> Water				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TBGW007-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125ml	16-0094	1% HNO3 (BAL)	1615017	<2	Cooler 3

<b>Lab ID:</b> 1621005-22		<b>Report Matrix:</b> Water				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TBGW007-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125ml	16-0094	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Bottle HDPE As-SP	6ml vacutainer	not provided	EDTA	not provided		Cooler 3
C	EXTRA_VOL	6ml vacutainer	not provided	EDTA	not provided		Cooler 3
D	Cent Tube 15mL Fe-Sp	40ml glass vial	not provided	1.6ml 6N degassed HCl (PP)	1615059		Cooler 3
E	EXTRA_VOL	40ml glass vial	not provided	1.6ml 6N degassed HCl (PP)	1615059		Cooler 3

<b>Lab ID:</b> 1621005-23		<b>Report Matrix:</b> Water				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TBGW507-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125ml	16-0094	1% HNO3 (BAL)	1615017	<2	Cooler 3



## Sample Containers

<b>Lab ID:</b> 1621005-24		<b>Report Matrix:</b> Water				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TBGW507-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125ml	16-0094	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Bottle HDPE As-SP	6ml vacutainer	not provided	EDTA	not provided		Cooler 3
C	EXTRA_VOL	6ml vacutainer	not provided	EDTA	not provided		Cooler 3
D	Cent Tube 15mL Fe-Sp	40ml glass vial	not provided	1.6ml 6N degassed HCl (PP)	1615059		Cooler 3
E	EXTRA_VOL	40ml glass vial	not provided	1.6ml 6N degassed HCl (PP)	1615059		Cooler 3

<b>Lab ID:</b> 1621005-25		<b>Report Matrix:</b> Water				<b>Collected:</b> 05/16/2016	
<b>Sample:</b> TBGW001-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0094	1% HNO3 (BAL)	1615017	<2	Cooler 3

<b>Lab ID:</b> 1621005-26		<b>Report Matrix:</b> Water				<b>Collected:</b> 05/19/2016	
<b>Sample:</b> TBGW002-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0094	1% HNO3 (BAL)	1615017	<2	Cooler 3



## Shipping Containers

### Cooler 1

**Received:** May 13, 2016 17:05  
**Tracking No:** n/a via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 5.8 °C

**Description:** Cooler 1  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#2

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 2

**Received:** May 13, 2016 17:05  
**Tracking No:** n/a via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 4.0 °C

**Description:** Cooler 2  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#2

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 3

**Received:** May 13, 2016 17:05  
**Tracking No:** n/a via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 2.1 °C

**Description:** Cooler 3  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#2

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 3

**Received:** May 18, 2016 10:45  
**Tracking No:** n/a via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 2.1 °C

**Description:** Cooler 3  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#2

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes





55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

# Chain of Custody Record

Field Sampler(s):

GSI

Client Contact		For Lab Use Only:					Laboratory										Lab PM		
Project Name: Parcel 15 - POT		SDG: _____					TestAmerica					Brooks					Brooks - Ben Wozniak - 206-753-6158		
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No					Analysis Requested											TestAmerica - Christabel Escarez - 253.248.4975	
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No					Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)		Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																	
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																	
Analysis Turnaround Time: <input type="checkbox"/> 21 days (STD)																			
<input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days *																			
<input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *																			
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.													
TBGW001-EI		5/16/16	1230	G	N	2													
TBGW002-EI		↓	1520	↓	↓	↓													
TBGW003-EI		5/17/16	1050	↓	↓	26													
TBGW005-EI		↓	1305	↓	↓	↓													
TBGW007-EI		↓	1645	↓	↓	↓													
TBGW507-EI		5/17/16	1700	G	N	26													

**Possible Hazard Identification:**  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client  Disposal by Lab  Archive for

Received by: *Chris Ryals* Date/Time: 5/18/16 5:15 am  
 Received by: *[Signature]* Date/Time: 5/18/16 10:45  
 Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Relinquished by: *[Signature]* Date/Time: 5/18/16 8:15  
 Relinquished by: *[Signature]* Date/Time: 5/18/16 10:45  
 Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 \*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
 Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

# Chain of Custody Record

Field Sampler(s):

GSI

<b>Client Contact</b>		<b>For Lab Use Only:</b>					<b>Laboratory</b>										<b>Lab PM</b>	
Project Name: Parcel 15 - POT		SDG: _____					TestAmerica					Brooks					Brooks - Ben Wozniak - 206-753-6158	
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No					<b>Analysis Requested</b>											TestAmerica - Christabel Escarez - 253.248.4975
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No					Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																
Analysis Turnaround Time:		<input type="checkbox"/> 21 days (STD) <input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *																
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.												
TBGN006-EI		5/12/16	1445	G	W	2												
TBGN004-EI		↓	1805	↓	↓	2												
OF #2 -EI		↓	1820	↓	↓	2												
OF #3 -EI		↓	1840	↓	↓	2												
TBGN008 -EI		5/13/16	1045	G	G	2												
TBGN009 -EI		↓	1340	↓	↓	2												

<b>Possible Hazard Identification:</b>		<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>	
Are samples hazardous? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for	
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic			
If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.			

Received by: <i>Mark Mc...</i>	Date/Time: 5/13/16 1525	Relinquished by: <i>Renae Fowler GSI</i>	Date/Time: 5/13/16 1525
Received by: _____	Date/Time: _____	Relinquished by: _____	Date/Time: _____
Received in Laboratory by: <i>Jan Wallin</i>	Date/Time: 5/13/16 17:05	Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input checked="" type="checkbox"/> Other	Tracking #: _____

**Special Instructions/QC Requirements**

\*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 \*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
 Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • [info@brooksapplied.com](mailto:info@brooksapplied.com)

July 5, 2016

GSI Water Solutions, Inc.  
ATTN: Cindy Ryals  
55 SW Yamhill St. Suite 300  
Portland OR 97204  
[cryals@gsiws.com](mailto:cryals@gsiws.com)

RE: Project GSI-PR1601b

Client Project: Parcel 15 – POT (603.002.010)

Dear Ms. Ryals,

On June 1, 2016 through June 3, 2016, Brooks Applied Labs (BAL) received forty-four (44) aqueous samples. The samples were logged-in for the analyses of dissolved arsenic (As), dissolved iron (Fe), dissolved manganese (Mn), total recoverable As, Fe speciation, and As speciation according to the chain-of-custody (COC) forms. All samples requiring filtration were field-filtered by the client prior to reception at BAL, with the exception of the dissolved metals fraction submitted for sample B003R-E1; this latter sample was received with a significant amount of particulate and was filtered at BAL upon receipt. All samples were received and stored according to BAL SOPs and EPA methodology.

It should be noted that the samples received on June 3<sup>rd</sup> were received at a slightly elevated temperature of 8.7°C. Since the temperature was close to the 4±2°C that BAL recommends for the speciation analyses, no qualification of the data was performed.

#### Dissolved Metals Quantitation by ICP-QQQ-MS

All aqueous samples for dissolved metals were directly analyzed for As, Fe, and Mn by inductively coupled plasma triple quadrupole mass spectrometry (ICP-QQQ-MS). The ICP-QQQ-MS determinative method uses advanced interference removal techniques to ensure accuracy of the sample results. For more information, please visit the *Interference Reduction Technology* section on our website, [brooksapplied.com](http://brooksapplied.com).

During the analysis of batch B161470 in sequence 1600736, the continuing calibration blank (CCB) bracketing samples MW011-E1 and MW001-E1 (and its associated quality control set) contained arsenic above the method reporting limit of 0.040µg/L and the results for these two samples were *not* greater than ten times the observed carryover. The elevated CCB was directly attributable to the fact that the samples analyzed immediately before the CCB (MW013-E1 and MW010-E1) greatly exceeded the calibration curve. Since samples MW011-E1 and MW001-E1 were analyzed before the samples that exceeded the calibration and therefore were not affected by carryover, no qualification of their results was necessary. However, MW013-E1, MW010-E1, and all subsequent samples that were potentially affected by carryover were reanalyzed at a later date in batch B161509.

#### Total Recoverable Metals Quantitation by ICP-QQQ-MS

All aqueous samples for total recoverable metals were digested on a hotblock apparatus with aliquots of with nitric and hydrochloric acids. The resulting digests were analyzed for As via ICP-QQQ-MS.

Comparison of the obtained total recoverable As results with the associated dissolved As results indicated that each total recoverable result was either greater than its associated dissolved As result, within accepted error (RPD  $\leq 20\%$ ) of its associated dissolved As result, or within  $\pm$  the method reporting limit (MRL) of its associated dissolved As result (as is the case with sample *WCTPW004B-10-E1*). Consequently, no corrective action of qualification of the obtained total recoverable or dissolved As results was necessary.

#### Arsenic Speciation by IC-ICP-CRC-MS

All aqueous samples for As speciation were analyzed using ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS). In accordance with the project agreement, As speciation was defined as dissolved arsenite [As(III)], arsenate [As(V)], monomethylarsonic acid [MMAs], and dimethylarsinic acid [DMAs]. Arsenic species are chromatographically separated on an ion exchange column and then quantified using inductively coupled plasma collision reaction cell mass spectrometry (ICP-CRC-MS); for more information on this determinative technique, please visit the *Interference Reduction Technology* section on our website.

#### Iron Speciation by Colorimetry and ICP-QQQ-MS

All aqueous samples for Fe(II) quantitation were analyzed directly by colorimetry. As requested by the client, Fe(III) was operationally defined as the difference between the dissolved Fe results obtained by ICP-QQQ-MS and the Fe(II) results obtained by colorimetry.

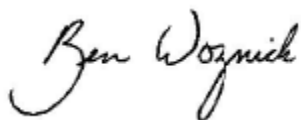
All results were *not* method blank corrected, as described in the calculations section of the relevant BAL SOPs, and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

Instances where the matrix spike/matrix spike duplicate (MS/MSD) sets were spiked at a concentration less than 25% of the native sample result, the recoveries were not reported (**NR**) and the MSD RPD is not calculated (**NIC**), as they are not valid indicators of data quality.

All data was reported without qualification, aside from concentration qualifiers, and all other associated quality control results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information, please see the *Report Information* page in your report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,



Ben Wozniak  
Project Manager  
[ben@brooksapplied.com](mailto:ben@brooksapplied.com)



## Report Information

### Laboratory Accreditation

BAL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BAL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksapplied.com/resources/certificates-permits/>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BAL</b>	Brooks Applied Labs	<b>MS</b>	matrix spike
<b>BLK</b>	method blank	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCB</b>	continuing calibration blank	<b>N/C</b>	not calculated
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>D</b>	dissolved fraction	<b>RPD</b>	relative percent difference
<b>DUP</b>	duplicate	<b>SCV</b>	secondary calibration verification
<b>IBL</b>	instrument blank	<b>SOP</b>	standard operating procedure
<b>ICV</b>	initial calibration verification	<b>SRM</b>	standard reference material
<b>MDL</b>	method detection limit	<b>T</b>	total fraction
<b>MRL</b>	method reporting limit	<b>TR</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>J</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J-1</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Applied Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BAL.



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
MW005R-E1	1623007-01	Ground Water	Sample	05/31/2016	06/01/2016
MW005R-E1	1623007-02	Ground Water	Sample	05/31/2016	06/01/2016
MW006R-E1	1623007-03	Ground Water	Sample	05/31/2016	06/01/2016
MW006R-E1	1623007-04	Ground Water	Sample	05/31/2016	06/01/2016
MWS06R-E1	1623007-05	Ground Water	Sample	05/31/2016	06/01/2016
MWS06R-E1	1623007-06	Ground Water	Sample	05/31/2016	06/01/2016
MW003-E1	1623007-07	Ground Water	Sample	05/31/2016	06/01/2016
MW003-E1	1623007-08	Ground Water	Sample	05/31/2016	06/01/2016
MWS03-E1	1623007-09	Ground Water	Sample	05/31/2016	06/01/2016
MWS03-E1	1623007-10	Ground Water	Sample	05/31/2016	06/01/2016
MW002R-E1	1623007-11	Ground Water	Sample	05/31/2016	06/01/2016
MW002R-E1	1623007-12	Ground Water	Sample	05/31/2016	06/01/2016
MW004-E1	1623007-13	Ground Water	Sample	05/31/2016	06/01/2016
MW004-E1	1623007-14	Ground Water	Sample	05/31/2016	06/01/2016
B003R-E1	1623007-15	Ground Water	Sample	05/31/2016	06/01/2016
B003R-E1	1623007-16	Ground Water	Sample	05/31/2016	06/01/2016
MW011-E1	1623007-17	Ground Water	Sample	05/31/2016	06/01/2016
MW011-E1	1623007-18	Ground Water	Sample	05/31/2016	06/01/2016
MW001-E1	1623007-19	Ground Water	Sample	05/31/2016	06/01/2016
MW001-E1	1623007-20	Ground Water	Sample	05/31/2016	06/01/2016
B005R-E1	1623007-21	Water	Sample	06/01/2016	06/02/2016
B005R-E1	1623007-22	Water	Sample	06/01/2016	06/02/2016
B006R-E1	1623007-23	Water	Sample	06/01/2016	06/02/2016
B006R-E1	1623007-24	Water	Sample	06/01/2016	06/02/2016
MW013-E1	1623007-25	Water	Sample	06/01/2016	06/02/2016
MW013-E1	1623007-26	Water	Sample	06/01/2016	06/02/2016
MW010-E1	1623007-27	Water	Sample	06/01/2016	06/02/2016
MW010-E1	1623007-28	Water	Sample	06/01/2016	06/02/2016
MW008-E1	1623007-29	Water	Sample	06/01/2016	06/02/2016
MW008-E1	1623007-30	Water	Sample	06/01/2016	06/02/2016
MW007-E1	1623007-31	Water	Sample	06/01/2016	06/02/2016
MW007-E1	1623007-32	Water	Sample	06/01/2016	06/02/2016
WCTSW001B-E1	1623007-33	Water	Sample	06/01/2016	06/02/2016
WCTSW001B-E1	1623007-34	Water	Sample	06/01/2016	06/02/2016
WCTSW002B-E1	1623007-35	Water	Sample	06/01/2016	06/02/2016
WCTSW002B-E1	1623007-36	Water	Sample	06/01/2016	06/02/2016
WCTSW003B-E1	1623007-37	Water	Sample	06/01/2016	06/02/2016
WCTSW003B-E1	1623007-38	Water	Sample	06/01/2016	06/02/2016
USSW001-E1	1623007-39	Water	Sample	06/01/2016	06/02/2016
USSW001-E1	1623007-40	Water	Sample	06/01/2016	06/02/2016
BWSW001-E1	1623007-41	Water	Sample	06/01/2016	06/02/2016



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
BWSW001-E1	1623007-42	Water	Sample	06/01/2016	06/02/2016
B001R-E1	1623007-43	Water	Sample	06/01/2016	06/02/2016
B001R-E1	1623007-44	Water	Sample	06/01/2016	06/02/2016
HC002-E1	1623007-45	Water	Sample	06/01/2016	06/02/2016
HC002-E1	1623007-46	Water	Sample	06/01/2016	06/02/2016
MW012-E1	1623007-47	Water	Sample	06/01/2016	06/02/2016
MW012-E1	1623007-48	Water	Sample	06/01/2016	06/02/2016
MW009-E1	1623007-49	Water	Sample	06/01/2016	06/02/2016
MW009-E1	1623007-50	Water	Sample	06/01/2016	06/02/2016
WCTPW001B-40-E1	1623007-51	Water	Sample	06/02/2016	06/02/2016
WCTPW001B-40-E1	1623007-52	Water	Sample	06/02/2016	06/02/2016
WCTPW001B-10-E1	1623007-53	Water	Sample	06/02/2016	06/02/2016
WCTPW001B-10-E1	1623007-54	Water	Sample	06/02/2016	06/02/2016
WCTPW001A-40-E1	1623007-55	Water	Sample	06/02/2016	06/02/2016
WCTPW001A-40-E1	1623007-56	Water	Sample	06/02/2016	06/02/2016
WCTPW001A-10-E1	1623007-57	Water	Sample	06/02/2016	06/02/2016
WCTPW001A-10-E1	1623007-58	Water	Sample	06/02/2016	06/02/2016
WCTPW002B-40-E1	1623007-59	Water	Sample	06/02/2016	06/02/2016
WCTPW002B-40-E1	1623007-60	Water	Sample	06/02/2016	06/02/2016
WCTPW002B-10-E1	1623007-61	Water	Sample	06/02/2016	06/02/2016
WCTPW002B-10-E1	1623007-62	Water	Sample	06/02/2016	06/02/2016
WCTPW003B-10-E1	1623007-63	Water	Sample	06/02/2016	06/02/2016
WCTPW003B-10-E1	1623007-64	Water	Sample	06/02/2016	06/02/2016
WCTPW003A-10-E1	1623007-65	Water	Sample	06/02/2016	06/02/2016
WCTPW003A-10-E1	1623007-66	Water	Sample	06/02/2016	06/02/2016
WCTPW002A-40-E1	1623007-67	Water	Sample	06/02/2016	06/02/2016
WCTPW002A-40-E1	1623007-68	Water	Sample	06/02/2016	06/02/2016
WCTPW002A-10-E1	1623007-69	Water	Sample	06/02/2016	06/02/2016
WCTPWSMB-E1	1623007-70	Water	Sample	06/02/2016	06/02/2016
WCTPWSMB-E1	1623007-71	Water	Sample	06/02/2016	06/02/2016
WCTPW003B-40-E1	1623007-72	Water	Sample	06/03/2016	06/03/2016
WCTPW003B-40-E1	1623007-73	Water	Sample	06/03/2016	06/03/2016
WCTPW003A-40-E1	1623007-74	Water	Sample	06/03/2016	06/03/2016
WCTPW003A-40-E1	1623007-75	Water	Sample	06/03/2016	06/03/2016
WCTPW004B-40-E1	1623007-76	Water	Sample	06/03/2016	06/03/2016
WCTPW004B-40-E1	1623007-77	Water	Sample	06/03/2016	06/03/2016
WCTPW004A-40-E1	1623007-78	Water	Sample	06/03/2016	06/03/2016
WCTPW004A-40-E1	1623007-79	Water	Sample	06/03/2016	06/03/2016
WCTPW004B-10-E1	1623007-80	Water	Sample	06/03/2016	06/03/2016
WCTPW004B-10-E1	1623007-81	Water	Sample	06/03/2016	06/03/2016
WCTPW004A-10-E1	1623007-82	Water	Sample	06/03/2016	06/03/2016



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
WCTPW004A-10-E1	1623007-83	Water	Sample	06/03/2016	06/03/2016
WCTSW004B-E1	1623007-84	Water	Sample	06/03/2016	06/03/2016
WCTSW004B-E1	1623007-85	Water	Sample	06/03/2016	06/03/2016
WCTSW504B-E1	1623007-86	Water	Sample	06/03/2016	06/03/2016
WCTSW504B-E1	1623007-87	Water	Sample	06/03/2016	06/03/2016

## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
As	Water	EPA 1638 Mod	06/14/2016	06/17/2016	B161470	1600736
As	Water	EPA 1638 Mod	06/14/2016	06/25/2016	B161509	1600764
As	Water	EPA 1638 Mod	06/21/2016	06/25/2016	B161509	1600764
As	Water	EPA 1638 Mod	06/22/2016	06/30/2016	B161471	1600774
As(III)	Water	IC-ICP-MS	06/23/2016	06/29/2016	B161544	1600772
As(V)	Water	IC-ICP-MS	06/23/2016	06/29/2016	B161544	1600772
DMAs	Water	IC-ICP-MS	06/23/2016	06/29/2016	B161544	1600772
Fe	Water	EPA 1638 Mod	06/14/2016	06/17/2016	B161470	1600736
Fe(II)	Water	SM 3500-Fe B mod.	06/01/2016	06/01/2016	B161345	1600657
Fe(II)	Water	SM 3500-Fe B mod.	06/02/2016	06/02/2016	B161346	1600658
Fe(II)	Water	SM 3500-Fe B mod.	06/03/2016	06/03/2016	B161368	1600671
MMAAs	Water	IC-ICP-MS	06/23/2016	06/29/2016	B161544	1600772
Mn	Water	EPA 1638 Mod	06/14/2016	06/17/2016	B161470	1600736





## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>B001R-E1</b>										
1623007-44	As	Water	D	54400		6.06	40.4	µg/L	B161509	1600764
1623007-43	As	Water	TR	75600		4.04	40.4	µg/L	B161471	1600774
1623007-44	As(III)	Water	D	45700		40.0	400	µg/L	B161544	1600772
1623007-44	As(V)	Water	D	7540		40.0	400	µg/L	B161544	1600772
1623007-44	DMAs	Water	D	≤ 60.0	U	60.0	420	µg/L	B161544	1600772
1623007-44	Fe	Water	D	92800		7.07	21.5	µg/L	B161470	1600736
1623007-44	Fe(II)	Water	D	79500		500	1500	µg/L	B161346	1600658
1623007-44	Fe(III)	Water	D	13300		500	1500	µg/L	[CALC]	N/A
1623007-44	MMAs	Water	D	≤ 60.0	U	60.0	460	µg/L	B161544	1600772
1623007-44	Mn	Water	D	2080		0.530	1.59	µg/L	B161470	1600736
<b>B003R-E1</b>										
1623007-16	As	Ground Water	D	251		0.152	1.01	µg/L	B161470	1600736
1623007-15	As	Ground Water	TR	346		0.20	2.02	µg/L	B161471	1600774
1623007-16	Fe	Ground Water	D	2000		7.07	21.5	µg/L	B161470	1600736
1623007-16	Mn	Ground Water	D	438		0.530	1.59	µg/L	B161470	1600736
<b>B005R-E1</b>										
1623007-22	As	Water	D	0.311	J	0.152	1.01	µg/L	B161470	1600736
1623007-21	As	Water	TR	0.29	J	0.20	2.02	µg/L	B161471	1600774
1623007-22	Fe	Water	D	25300		7.07	21.5	µg/L	B161470	1600736
1623007-22	Fe(II)	Water	D	23300		250	750	µg/L	B161346	1600658
1623007-22	Fe(III)	Water	D	1960		250	750	µg/L	[CALC]	N/A
1623007-22	Mn	Water	D	1000		0.530	1.59	µg/L	B161470	1600736
<b>B006R-E1</b>										
1623007-24	As	Water	D	62.3		0.152	1.01	µg/L	B161470	1600736
1623007-23	As	Water	TR	61.0		0.20	2.02	µg/L	B161471	1600774
1623007-24	Fe	Water	D	76500		7.07	21.5	µg/L	B161470	1600736
1623007-24	Mn	Water	D	1240		0.530	1.59	µg/L	B161470	1600736
<b>BWSW001-E1</b>										
1623007-42	As	Water	D	1.47		0.152	1.01	µg/L	B161509	1600764
1623007-41	As	Water	TR	1.79	J	0.20	2.02	µg/L	B161471	1600774
1623007-42	Fe	Water	D	≤ 7.07	U	7.07	21.5	µg/L	B161470	1600736
1623007-42	Fe(II)	Water	D	9.8	J	5.0	15.0	µg/L	B161346	1600658
1623007-42	Fe(III)	Water	D	≤ 7.07	U	7.07	21.5	µg/L	[CALC]	N/A
1623007-42	Mn	Water	D	8.33		0.530	1.59	µg/L	B161470	1600736



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>HC002-E1</b>										
1623007-46	As	Water	D	37200		3.03	20.2	µg/L	B161509	1600764
1623007-45	As	Water	TR	43300		4.04	40.4	µg/L	B161471	1600774
1623007-46	As(III)	Water	D	34700		40.0	400	µg/L	B161544	1600772
1623007-46	As(V)	Water	D	9250		40.0	400	µg/L	B161544	1600772
1623007-46	DMAs	Water	D	≤ 60.0	U	60.0	420	µg/L	B161544	1600772
1623007-46	Fe	Water	D	162000		7.07	21.5	µg/L	B161470	1600736
1623007-46	Fe(II)	Water	D	135000		1000	3000	µg/L	B161346	1600658
1623007-46	Fe(III)	Water	D	27000		1000	3000	µg/L	[CALC]	N/A
1623007-46	MMAs	Water	D	≤ 60.0	U	60.0	460	µg/L	B161544	1600772
1623007-46	Mn	Water	D	4780		0.530	1.59	µg/L	B161470	1600736
<b>MW001-E1</b>										
1623007-20	As	Ground Water	D	11.9		0.152	1.01	µg/L	B161470	1600736
1623007-19	As	Ground Water	TR	11.0		0.20	2.02	µg/L	B161471	1600774
1623007-20	Fe	Ground Water	D	52000		7.07	21.5	µg/L	B161470	1600736
1623007-20	Fe(II)	Ground Water	D	35400		250	750	µg/L	B161345	1600657
1623007-20	Fe(III)	Ground Water	D	16600		250	750	µg/L	[CALC]	N/A
1623007-20	Mn	Ground Water	D	2070		0.530	1.59	µg/L	B161470	1600736
<b>MW002R-E1</b>										
1623007-12	As	Ground Water	D	3.39		0.152	1.01	µg/L	B161470	1600736
1623007-11	As	Ground Water	TR	3.56		0.20	2.02	µg/L	B161471	1600774
1623007-12	Fe	Ground Water	D	34.6		7.07	21.5	µg/L	B161470	1600736
1623007-12	Fe(II)	Ground Water	D	17.0		5.0	15.0	µg/L	B161345	1600657
1623007-12	Fe(III)	Ground Water	D	17.6	J	7.07	21.5	µg/L	[CALC]	N/A
1623007-12	Mn	Ground Water	D	1.20	J	0.530	1.59	µg/L	B161470	1600736
<b>MW003-E1</b>										
1623007-08	As	Ground Water	D	11.1		0.152	1.01	µg/L	B161470	1600736
1623007-07	As	Ground Water	TR	11.1		0.20	2.02	µg/L	B161471	1600774
1623007-08	Fe	Ground Water	D	48000		7.07	21.5	µg/L	B161470	1600736
1623007-08	Fe(II)	Ground Water	D	35500		250	750	µg/L	B161345	1600657
1623007-08	Fe(III)	Ground Water	D	12500		250	750	µg/L	[CALC]	N/A
1623007-08	Mn	Ground Water	D	1420		0.530	1.59	µg/L	B161470	1600736



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MW004-E1</b>										
1623007-14	As	Ground Water	D	0.802	J	0.152	1.01	µg/L	B161470	1600736
1623007-13	As	Ground Water	TR	0.87	J	0.20	2.02	µg/L	B161471	1600774
1623007-14	Fe	Ground Water	D	218		7.07	21.5	µg/L	B161470	1600736
1623007-14	Fe(II)	Ground Water	D	236		5.0	15.0	µg/L	B161345	1600657
1623007-14	Fe(III)	Ground Water	D	≤ 7.07	U	7.07	21.5	µg/L	[CALC]	N/A
1623007-14	Mn	Ground Water	D	291		0.530	1.59	µg/L	B161470	1600736
<b>MW005R-E1</b>										
1623007-02	As	Ground Water	D	2.09		0.152	1.01	µg/L	B161470	1600736
1623007-01	As	Ground Water	TR	2.24		0.20	2.02	µg/L	B161471	1600774
1623007-02	Fe	Ground Water	D	23800		7.07	21.5	µg/L	B161470	1600736
1623007-02	Mn	Ground Water	D	340		0.530	1.59	µg/L	B161470	1600736
<b>MW006R-E1</b>										
1623007-04	As	Ground Water	D	2.13		0.152	1.01	µg/L	B161470	1600736
1623007-03	As	Ground Water	TR	1.75	J	0.20	2.02	µg/L	B161471	1600774
1623007-04	Fe	Ground Water	D	48000		7.07	21.5	µg/L	B161470	1600736
1623007-04	Mn	Ground Water	D	6120		0.530	1.59	µg/L	B161470	1600736
<b>MW007-E1</b>										
1623007-32	As	Water	D	21.5		0.152	1.01	µg/L	B161509	1600764
1623007-31	As	Water	TR	20.8		0.20	2.02	µg/L	B161471	1600774
1623007-32	Fe	Water	D	118000		7.07	21.5	µg/L	B161470	1600736
1623007-32	Fe(II)	Water	D	107000		1000	3000	µg/L	B161346	1600658
1623007-32	Fe(III)	Water	D	11500		1000	3000	µg/L	[CALC]	N/A
1623007-32	Mn	Water	D	7180		0.530	1.59	µg/L	B161470	1600736
<b>MW008-E1</b>										
1623007-30	As	Water	D	24.4		0.152	1.01	µg/L	B161509	1600764
1623007-29	As	Water	TR	28.4		0.20	2.02	µg/L	B161471	1600774
1623007-30	Fe	Water	D	74100		7.07	21.5	µg/L	B161470	1600736
1623007-30	Mn	Water	D	2040		0.530	1.59	µg/L	B161470	1600736



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MW009-E1</b>										
1623007-50	As	Water	D	87.4		0.152	1.01	µg/L	B161509	1600764
1623007-49	As	Water	TR	72.8		0.20	2.02	µg/L	B161471	1600774
1623007-50	As(III)	Water	D	4.92		0.100	1.00	µg/L	B161544	1600772
1623007-50	As(V)	Water	D	90.2		0.100	1.00	µg/L	B161544	1600772
1623007-50	DMAs	Water	D	0.179	J	0.150	1.05	µg/L	B161544	1600772
1623007-50	Fe	Water	D	243000		7.07	21.5	µg/L	B161470	1600736
1623007-50	Fe(II)	Water	D	217000		1250	3750	µg/L	B161346	1600658
1623007-50	Fe(III)	Water	D	26000		1250	3750	µg/L	[CALC]	N/A
1623007-50	MMAAs	Water	D	≤ 0.150	U	0.150	1.15	µg/L	B161544	1600772
1623007-50	Mn	Water	D	4450		0.530	1.59	µg/L	B161470	1600736
<b>MW010-E1</b>										
1623007-28	As	Water	D	37000		3.03	20.2	µg/L	B161509	1600764
1623007-27	As	Water	TR	45800		4.04	40.4	µg/L	B161471	1600774
1623007-28	As(III)	Water	D	33700		40.0	400	µg/L	B161544	1600772
1623007-28	As(V)	Water	D	10800		40.0	400	µg/L	B161544	1600772
1623007-28	DMAs	Water	D	≤ 60.0	U	60.0	420	µg/L	B161544	1600772
1623007-28	Fe	Water	D	149000		7.07	21.5	µg/L	B161470	1600736
1623007-28	Fe(II)	Water	D	131000		1000	3000	µg/L	B161346	1600658
1623007-28	Fe(III)	Water	D	18400		1000	3000	µg/L	[CALC]	N/A
1623007-28	MMAAs	Water	D	≤ 60.0	U	60.0	460	µg/L	B161544	1600772
1623007-28	Mn	Water	D	6280		0.530	1.59	µg/L	B161470	1600736
<b>MW011-E1</b>										
1623007-18	As	Ground Water	D	27.9		0.152	1.01	µg/L	B161470	1600736
1623007-17	As	Ground Water	TR	29.9		0.20	2.02	µg/L	B161471	1600774
1623007-18	Fe	Ground Water	D	25900		7.07	21.5	µg/L	B161470	1600736
1623007-18	Mn	Ground Water	D	1760		0.530	1.59	µg/L	B161470	1600736
<b>MW012-E1</b>										
1623007-48	As	Water	D	16.7		0.152	1.01	µg/L	B161509	1600764
1623007-47	As	Water	TR	18.5		0.20	2.02	µg/L	B161471	1600774
1623007-48	Fe	Water	D	107000		7.07	21.5	µg/L	B161470	1600736
1623007-48	Fe(II)	Water	D	70400		500	1500	µg/L	B161346	1600658
1623007-48	Fe(III)	Water	D	36500		500	1500	µg/L	[CALC]	N/A
1623007-48	Mn	Water	D	6540		0.530	1.59	µg/L	B161470	1600736



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MW013-E1</b>										
1623007-26	As	Water	D	34300		3.03	20.2	µg/L	B161509	1600764
1623007-25	As	Water	TR	33700		4.04	40.4	µg/L	B161471	1600774
1623007-26	As(III)	Water	D	29700		40.0	400	µg/L	B161544	1600772
1623007-26	As(V)	Water	D	6220		40.0	400	µg/L	B161544	1600772
1623007-26	DMAs	Water	D	≤ 60.0	U	60.0	420	µg/L	B161544	1600772
1623007-26	Fe	Water	D	113000		7.07	21.5	µg/L	B161470	1600736
1623007-26	Fe(II)	Water	D	98700		1000	3000	µg/L	B161346	1600658
1623007-26	Fe(III)	Water	D	14800		1000	3000	µg/L	[CALC]	N/A
1623007-26	MMAs	Water	D	≤ 60.0	U	60.0	460	µg/L	B161544	1600772
1623007-26	Mn	Water	D	6340		0.530	1.59	µg/L	B161470	1600736
<b>MWS03-E1</b>										
1623007-10	As	Ground Water	D	10.8		0.152	1.01	µg/L	B161470	1600736
1623007-09	As	Ground Water	TR	10.6		0.20	2.02	µg/L	B161471	1600774
1623007-10	Fe	Ground Water	D	47700		7.07	21.5	µg/L	B161470	1600736
1623007-10	Fe(II)	Ground Water	D	36500		250	750	µg/L	B161345	1600657
1623007-10	Fe(III)	Ground Water	D	11300		250	750	µg/L	[CALC]	N/A
1623007-10	Mn	Ground Water	D	1430		0.530	1.59	µg/L	B161470	1600736
<b>MWS06R-E1</b>										
1623007-06	As	Ground Water	D	1.97		0.152	1.01	µg/L	B161470	1600736
1623007-05	As	Ground Water	TR	1.85	J	0.20	2.02	µg/L	B161471	1600774
1623007-06	Fe	Ground Water	D	48700		7.07	21.5	µg/L	B161470	1600736
1623007-06	Mn	Ground Water	D	6360		0.530	1.59	µg/L	B161470	1600736
<b>USSW001-E1</b>										
1623007-40	As	Water	D	0.495	J	0.152	1.01	µg/L	B161509	1600764
1623007-39	As	Water	TR	0.73	J	0.20	2.02	µg/L	B161471	1600774
1623007-40	Fe	Water	D	191		7.07	21.5	µg/L	B161470	1600736
1623007-40	Fe(II)	Water	D	61.4		5.0	15.0	µg/L	B161346	1600658
1623007-40	Fe(III)	Water	D	129		7.07	21.5	µg/L	[CALC]	N/A
1623007-40	Mn	Water	D	28.4		0.530	1.59	µg/L	B161470	1600736



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTPW001A-10-E1</b>										
1623007-58	As	Water	D	2.14		0.152	1.01	µg/L	B161509	1600764
1623007-57	As	Water	TR	22.7		0.20	2.02	µg/L	B161471	1600774
1623007-58	Fe	Water	D	396		7.07	21.5	µg/L	B161470	1600736
1623007-58	Fe(II)	Water	D	159		5.0	15.0	µg/L	B161368	1600671
1623007-58	Fe(III)	Water	D	237		7.07	21.5	µg/L	[CALC]	N/A
1623007-58	Mn	Water	D	222		0.530	1.59	µg/L	B161470	1600736
<b>WCTPW001A-40-E1</b>										
1623007-56	As	Water	D	18.8		0.152	1.01	µg/L	B161509	1600764
1623007-55	As	Water	TR	28.1		0.20	2.02	µg/L	B161471	1600774
1623007-56	Fe	Water	D	51500		7.07	21.5	µg/L	B161470	1600736
1623007-56	Fe(II)	Water	D	35500		1000	3000	µg/L	B161368	1600671
1623007-56	Fe(III)	Water	D	16000		1000	3000	µg/L	[CALC]	N/A
1623007-56	Mn	Water	D	3240		0.530	1.59	µg/L	B161470	1600736
<b>WCTPW001B-10-E1</b>										
1623007-54	As	Water	D	2.27		0.152	1.01	µg/L	B161509	1600764
1623007-53	As	Water	TR	26.5		0.20	2.02	µg/L	B161471	1600774
1623007-54	Fe	Water	D	562		7.07	21.5	µg/L	B161470	1600736
1623007-54	Fe(II)	Water	D	74.8		5.0	15.0	µg/L	B161368	1600671
1623007-54	Fe(III)	Water	D	487		7.07	21.5	µg/L	[CALC]	N/A
1623007-54	Mn	Water	D	1280		0.530	1.59	µg/L	B161470	1600736
<b>WCTPW001B-40-E1</b>										
1623007-52	As	Water	D	49.0		0.152	1.01	µg/L	B161509	1600764
1623007-51	As	Water	TR	74.2		0.20	2.02	µg/L	B161471	1600774
1623007-52	As(III)	Water	D	28.5		0.100	1.00	µg/L	B161544	1600772
1623007-52	As(V)	Water	D	21.0		0.100	1.00	µg/L	B161544	1600772
1623007-52	DMAs	Water	D	≤ 0.150	U	0.150	1.05	µg/L	B161544	1600772
1623007-52	Fe	Water	D	21200		7.07	21.5	µg/L	B161470	1600736
1623007-52	Fe(II)	Water	D	20600		1000	3000	µg/L	B161368	1600671
1623007-52	Fe(III)	Water	D	≤ 1000	U	1000	3000	µg/L	[CALC]	N/A
1623007-52	MMAs	Water	D	≤ 0.150	U	0.150	1.15	µg/L	B161544	1600772
1623007-52	Mn	Water	D	1810		0.530	1.59	µg/L	B161470	1600736



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTPW002A-10-E1</b>										
1623007-69	As	Water	D	1.92		0.152	1.01	µg/L	B161509	1600764
1623007-69	Fe	Water	D	321		7.07	21.5	µg/L	B161470	1600736
1623007-69	Fe(II)	Water	D	39.7		5.0	15.0	µg/L	B161368	1600671
1623007-69	Fe(III)	Water	D	281		7.07	21.5	µg/L	[CALC]	N/A
1623007-69	Mn	Water	D	1270		0.530	1.59	µg/L	B161470	1600736
<b>WCTPW002A-40-E1</b>										
1623007-68	As	Water	D	1.24		0.152	1.01	µg/L	B161509	1600764
1623007-67	As	Water	TR	2.96		0.20	2.02	µg/L	B161471	1600774
1623007-68	Fe	Water	D	3270		7.07	21.5	µg/L	B161470	1600736
1623007-68	Fe(II)	Water	D	3270		250	750	µg/L	B161368	1600671
1623007-68	Fe(III)	Water	D	≤ 250	U	250	750	µg/L	[CALC]	N/A
1623007-68	Mn	Water	D	133		0.530	1.59	µg/L	B161470	1600736
<b>WCTPW002B-10-E1</b>										
1623007-62	As	Water	D	8.37		0.152	1.01	µg/L	B161509	1600764
1623007-61	As	Water	TR	28.1		0.20	2.02	µg/L	B161471	1600774
1623007-62	Fe	Water	D	12300		7.07	21.5	µg/L	B161470	1600736
1623007-62	Fe(II)	Water	D	11200		250	750	µg/L	B161368	1600671
1623007-62	Fe(III)	Water	D	1060		250	750	µg/L	[CALC]	N/A
1623007-62	Mn	Water	D	442		0.530	1.59	µg/L	B161470	1600736
<b>WCTPW002B-40-E1</b>										
1623007-60	As	Water	D	3.77		0.152	1.01	µg/L	B161509	1600764
1623007-59	As	Water	TR	6.15		0.20	2.02	µg/L	B161471	1600774
1623007-60	Fe	Water	D	22700		7.07	21.5	µg/L	B161470	1600736
1623007-60	Fe(II)	Water	D	19600		1000	3000	µg/L	B161368	1600671
1623007-60	Fe(III)	Water	D	3090		1000	3000	µg/L	[CALC]	N/A
1623007-60	Mn	Water	D	446		0.530	1.59	µg/L	B161470	1600736
<b>WCTPW003A-10-E1</b>										
1623007-66	As	Water	D	4.54		0.152	1.01	µg/L	B161509	1600764
1623007-65	As	Water	TR	5.63		0.20	2.02	µg/L	B161471	1600774
1623007-66	Fe	Water	D	13200		7.07	21.5	µg/L	B161470	1600736
1623007-66	Fe(II)	Water	D	11200		250	750	µg/L	B161368	1600671
1623007-66	Fe(III)	Water	D	2020		250	750	µg/L	[CALC]	N/A
1623007-66	Mn	Water	D	4270		0.530	1.59	µg/L	B161470	1600736



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTPW003A-40-E1</b>										
1623007-75	As	Water	D	1.08		0.152	1.01	µg/L	B161509	1600764
1623007-74	As	Water	TR	7.30		0.20	2.02	µg/L	B161471	1600774
1623007-75	Fe	Water	D	7090		7.07	21.5	µg/L	B161470	1600736
1623007-75	Fe(II)	Water	D	6220		100	300	µg/L	B161368	1600671
1623007-75	Fe(III)	Water	D	876		100	300	µg/L	[CALC]	N/A
1623007-75	Mn	Water	D	3800		0.530	1.59	µg/L	B161470	1600736
<b>WCTPW003B-10-E1</b>										
1623007-64	As	Water	D	0.871	J	0.152	1.01	µg/L	B161509	1600764
1623007-63	As	Water	TR	36.8		0.20	2.02	µg/L	B161471	1600774
1623007-64	Fe	Water	D	313		7.07	21.5	µg/L	B161470	1600736
1623007-64	Fe(II)	Water	D	63.1		5.0	15.0	µg/L	B161368	1600671
1623007-64	Fe(III)	Water	D	250		7.07	21.5	µg/L	[CALC]	N/A
1623007-64	Mn	Water	D	1080		0.530	1.59	µg/L	B161470	1600736
<b>WCTPW003B-40-E1</b>										
1623007-73	As	Water	D	4.07		0.152	1.01	µg/L	B161509	1600764
1623007-72	As	Water	TR	10.1		0.20	2.02	µg/L	B161471	1600774
1623007-73	Fe	Water	D	15700		7.07	21.5	µg/L	B161470	1600736
1623007-73	Fe(II)	Water	D	12900		100	300	µg/L	B161368	1600671
1623007-73	Fe(III)	Water	D	2830		100	300	µg/L	[CALC]	N/A
1623007-73	Mn	Water	D	2640		0.530	1.59	µg/L	B161470	1600736
<b>WCTPW004A-10-E1</b>										
1623007-83	As	Water	D	10.4		0.152	1.01	µg/L	B161509	1600764
1623007-82	As	Water	TR	25.0		0.20	2.02	µg/L	B161471	1600774
1623007-83	Fe	Water	D	76500		7.07	21.5	µg/L	B161470	1600736
1623007-83	Fe(II)	Water	D	54400		500	1500	µg/L	B161368	1600671
1623007-83	Fe(III)	Water	D	22000		500	1500	µg/L	[CALC]	N/A
1623007-83	Mn	Water	D	3260		0.530	1.59	µg/L	B161470	1600736
<b>WCTPW004A-40-E1</b>										
1623007-79	As	Water	D	1.54		0.152	1.01	µg/L	B161509	1600764
1623007-78	As	Water	TR	12.8		0.20	2.02	µg/L	B161471	1600774
1623007-79	Fe	Water	D	7620		7.07	21.5	µg/L	B161470	1600736
1623007-79	Fe(II)	Water	D	5840		100	300	µg/L	B161368	1600671
1623007-79	Fe(III)	Water	D	1780		100	300	µg/L	[CALC]	N/A
1623007-79	Mn	Water	D	886		0.530	1.59	µg/L	B161470	1600736





## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTPW004B-10-E1</b>										
1623007-81	As	Water	D	3.26		0.152	1.01	µg/L	B161509	1600764
1623007-80	As	Water	TR	2.08		0.20	2.02	µg/L	B161471	1600774
1623007-81	Fe	Water	D	13700		7.07	21.5	µg/L	B161470	1600736
1623007-81	Fe(II)	Water	D	11100		100	300	µg/L	B161368	1600671
1623007-81	Fe(III)	Water	D	2590		100	300	µg/L	[CALC]	N/A
1623007-81	Mn	Water	D	1590		0.530	1.59	µg/L	B161470	1600736
<b>WCTPW004B-40-E1</b>										
1623007-77	As	Water	D	3.81		0.152	1.01	µg/L	B161509	1600764
1623007-76	As	Water	TR	11.4		0.20	2.02	µg/L	B161471	1600774
1623007-77	Fe	Water	D	9660		7.07	21.5	µg/L	B161470	1600736
1623007-77	Fe(II)	Water	D	7760		100	300	µg/L	B161368	1600671
1623007-77	Fe(III)	Water	D	1900		100	300	µg/L	[CALC]	N/A
1623007-77	Mn	Water	D	1140		0.530	1.59	µg/L	B161470	1600736
<b>WCTPWSMB-E1</b>										
1623007-71	As	Water	D	≤ 0.152	U	0.152	1.01	µg/L	B161509	1600764
1623007-70	As	Water	TR	≤ 0.20	U	0.20	2.02	µg/L	B161471	1600774
1623007-71	Fe	Water	D	≤ 7.07	U	7.07	21.5	µg/L	B161470	1600736
1623007-71	Mn	Water	D	2.62		0.530	1.59	µg/L	B161470	1600736
<b>WCTSW001B-E1</b>										
1623007-34	As	Water	D	1.67		0.152	1.01	µg/L	B161509	1600764
1623007-33	As	Water	TR	2.80		0.20	2.02	µg/L	B161471	1600774
1623007-34	Fe	Water	D	917		7.07	21.5	µg/L	B161470	1600736
1623007-34	Fe(II)	Water	D	606		5.0	15.0	µg/L	B161346	1600658
1623007-34	Fe(III)	Water	D	311		7.07	21.5	µg/L	[CALC]	N/A
1623007-34	Mn	Water	D	217		0.530	1.59	µg/L	B161470	1600736
<b>WCTSW002B-E1</b>										
1623007-36	As	Water	D	1.53		0.152	1.01	µg/L	B161509	1600764
1623007-35	As	Water	TR	4.49		0.20	2.02	µg/L	B161471	1600774
1623007-36	Fe	Water	D	702		7.07	21.5	µg/L	B161470	1600736
1623007-36	Fe(II)	Water	D	437		5.0	15.0	µg/L	B161346	1600658
1623007-36	Fe(III)	Water	D	266		7.07	21.5	µg/L	[CALC]	N/A
1623007-36	Mn	Water	D	169		0.530	1.59	µg/L	B161470	1600736



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTSW003B-E1</b>										
1623007-38	As	Water	D	2.11		0.152	1.01	µg/L	B161509	1600764
1623007-37	As	Water	TR	8.45		0.20	2.02	µg/L	B161471	1600774
1623007-38	Fe	Water	D	781		7.07	21.5	µg/L	B161470	1600736
1623007-38	Fe(II)	Water	D	589		5.0	15.0	µg/L	B161346	1600658
1623007-38	Fe(III)	Water	D	192		7.07	21.5	µg/L	[CALC]	N/A
1623007-38	Mn	Water	D	179		0.530	1.59	µg/L	B161470	1600736
<b>WCTSW004B-E1</b>										
1623007-85	As	Water	D	0.432	J	0.152	1.01	µg/L	B161509	1600764
1623007-84	As	Water	TR	0.92	J	0.20	2.02	µg/L	B161471	1600774
1623007-85	Fe	Water	D	201		7.07	21.5	µg/L	B161470	1600736
1623007-85	Fe(II)	Water	D	7.0	J	5.0	15.0	µg/L	B161368	1600671
1623007-85	Fe(III)	Water	D	194		7.07	21.5	µg/L	[CALC]	N/A
1623007-85	Mn	Water	D	65.2		0.530	1.59	µg/L	B161470	1600736
<b>WCTSW504B-E1</b>										
1623007-87	As	Water	D	0.456	J	0.152	1.01	µg/L	B161509	1600764
1623007-86	As	Water	TR	1.16	J	0.20	2.02	µg/L	B161471	1600774
1623007-87	Fe	Water	D	166		7.07	21.5	µg/L	B161470	1600736
1623007-87	Fe(II)	Water	D	77.1		5.0	15.0	µg/L	B161368	1600671
1623007-87	Fe(III)	Water	D	88.7		7.07	21.5	µg/L	[CALC]	N/A
1623007-87	Mn	Water	D	64.1		0.530	1.59	µg/L	B161470	1600736



## Accuracy & Precision Summary

Batch: B161345  
Lab Matrix: Water  
Method: SM 3500-Fe B mod.

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161345-DUP1	Duplicate, (1623007-14) Fe(II)	236.0		238.0	µg/L		0.8% 25
B161345-MS1	Matrix Spike, (1623007-14) Fe(II)	236.0	500.0	766.0	µg/L	106% 75-125	
B161345-MSD1	Matrix Spike Duplicate, (1623007-14) Fe(II)	236.0	500.0	768.0	µg/L	106% 75-125	0.3% 25



## Accuracy & Precision Summary

Batch: B161346  
Lab Matrix: Water  
Method: SM 3500-Fe B mod.

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161346-DUP5	Duplicate, (1623007-22) Fe(II)	23320		24420	µg/L		5% 25
B161346-MS5	Matrix Spike, (1623007-22) Fe(II)	23320	25000	49940	µg/L	107% 75-125	
B161346-MSD5	Matrix Spike Duplicate, (1623007-22) Fe(II)	23320	25000	49580	µg/L	105% 75-125	0.7% 25



## Accuracy & Precision Summary

Batch: B161368  
 Lab Matrix: Water  
 Method: SM 3500-Fe B mod.

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161368-DUP1	Duplicate, (1623007-58) Fe(II)	158.9		161.2	µg/L		1% 25
B161368-MS1	Matrix Spike, (1623007-58) Fe(II)	158.9	500.0	616.9	µg/L	92% 75-125	
B161368-MSD1	Matrix Spike Duplicate, (1623007-58) Fe(II)	158.9	500.0	623.9	µg/L	93% 75-125	1% 25
B161368-DUP2	Duplicate, (1623007-79) Fe(II)	5842		5748	µg/L		2% 25
B161368-MS2	Matrix Spike, (1623007-79) Fe(II)	5842	10000	15700	µg/L	99% 75-125	
B161368-MSD2	Matrix Spike Duplicate, (1623007-79) Fe(II)	5842	10000	15840	µg/L	100% 75-125	0.9% 25



## Accuracy & Precision Summary

Batch: B161470  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B161470-SRM1</b>	<b>Certified Reference Material, (NC00370, T191 as SRM)</b>						
	As		4.080	4.066	µg/L	100% 75-125	
	Fe		83.00	78.72	µg/L	95% 75-125	
	Mn		27.00	26.73	µg/L	99% 75-125	
<b>B161470-DUP1</b>	<b>Duplicate, (1623007-02)</b>						
	As	2.090		2.161	µg/L		3% 20
	Fe	23800		23330	µg/L		2% 20
	Mn	339.7		328.3	µg/L		3% 20
<b>B161470-MS1</b>	<b>Matrix Spike, (1623007-02)</b>						
	As	2.090	252.5	241.7	µg/L	95% 75-125	
	Fe	23800	2525	25010	µg/L	NR 75-125	
	Mn	339.7	252.5	562.6	µg/L	88% 75-125	
<b>B161470-MSD1</b>	<b>Matrix Spike Duplicate, (1623007-02)</b>						
	As	2.090	252.5	245.0	µg/L	96% 75-125	1% 20
	Fe	23800	2525	26020	µg/L	NR 75-125	N/C 20
	Mn	339.7	252.5	577.4	µg/L	94% 75-125	3% 20
<b>B161470-DUP2</b>	<b>Duplicate, (1623007-22)</b>						
	As	0.311		0.310	µg/L		0.2% 20
	Fe	25270		25530	µg/L		1% 20
	Mn	999.9		1002	µg/L		0.2% 20
<b>B161470-MS2</b>	<b>Matrix Spike, (1623007-22)</b>						
	As	0.311	252.5	241.5	µg/L	95% 75-125	
	Fe	25270	2525	27340	µg/L	NR 75-125	
	Mn	999.9	252.5	1230	µg/L	91% 75-125	
<b>B161470-MSD2</b>	<b>Matrix Spike Duplicate, (1623007-22)</b>						
	As	0.311	252.5	246.3	µg/L	97% 75-125	2% 20
	Fe	25270	2525	27200	µg/L	NR 75-125	N/C 20
	Mn	999.9	252.5	1231	µg/L	92% 75-125	0.06% 20



## Accuracy & Precision Summary

Batch: B161470  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161470-DUP3	Duplicate, (1623007-42)						
	Fe	ND		ND	µg/L		N/C 20
	Mn	8.335		8.340	µg/L		0.06% 20
B161470-MS3	Matrix Spike, (1623007-42)						
	Fe	ND	2525	2444	µg/L	97% 75-125	
	Mn	8.335	252.5	267.8	µg/L	103% 75-125	
B161470-MSD3	Matrix Spike Duplicate, (1623007-42)						
	Fe	ND	2525	2450	µg/L	97% 75-125	0.3% 20
	Mn	8.335	252.5	269.5	µg/L	103% 75-125	0.7% 20
B161470-DUP4	Duplicate, (1623007-62)						
	Fe	12280		11950	µg/L		3% 20
	Mn	441.7		432.9	µg/L		2% 20
B161470-MS4	Matrix Spike, (1623007-62)						
	Fe	12280	2525	14300	µg/L	NR 75-125	
	Mn	441.7	252.5	670.8	µg/L	91% 75-125	
B161470-MSD4	Matrix Spike Duplicate, (1623007-62)						
	Fe	12280	2525	14350	µg/L	NR 75-125	N/C 20
	Mn	441.7	252.5	676.1	µg/L	93% 75-125	0.8% 20
B161470-DUP5	Duplicate, (1623007-81)						
	Fe	13660		13600	µg/L		0.4% 20
	Mn	1595		1591	µg/L		0.3% 20
B161470-MS5	Matrix Spike, (1623007-81)						
	Fe	13660	2525	16200	µg/L	NR 75-125	
	Mn	1595	252.5	1877	µg/L	NR 75-125	
B161470-MSD5	Matrix Spike Duplicate, (1623007-81)						
	Fe	13660	2525	15890	µg/L	NR 75-125	N/C 20
	Mn	1595	252.5	1837	µg/L	NR 75-125	N/C 20



## Accuracy & Precision Summary

Batch: B161471  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161471-BS1	Laboratory Fortified Blank, (1626032) As		200.0	187.4	µg/L	94% 75-125	
B161471-BS2	Laboratory Fortified Blank, (1626032) As		200.0	192.7	µg/L	96% 75-125	
B161471-BS3	Laboratory Fortified Blank, (1626032) As		200.0	192.2	µg/L	96% 75-125	
B161471-SRM1	Certified Reference Material, (NC00147, TMDA 70.2 Reference Standard - Bottle4) As		42.20	35.77	µg/L	85% 75-125	
B161471-SRM2	Certified Reference Material, (NC00147, TMDA 70.2 Reference Standard - Bottle4) As		42.20	34.95	µg/L	83% 75-125	
B161471-SRM3	Certified Reference Material, (NC00147, TMDA 70.2 Reference Standard - Bottle4) As		42.20	35.16	µg/L	83% 75-125	
B161471-DUP1	Duplicate, (1623007-25) As	33710		33020	µg/L		2% 20
B161471-MS1	Matrix Spike, (1623007-25) As	33710	202.0	33660	µg/L	NR 75-125	
B161471-MSD1	Matrix Spike Duplicate, (1623007-25) As	33710	202.0	34860	µg/L	NR 75-125	N/C 20
B161471-DUP2	Duplicate, (1623007-33) As	2.80		3.01	µg/L		7% 20
B161471-MS2	Matrix Spike, (1623007-33) As	2.80	202.0	203.3	µg/L	99% 75-125	
B161471-MSD2	Matrix Spike Duplicate, (1623007-33) As	2.80	202.0	171.9	µg/L	84% 75-125	17% 20





## Accuracy & Precision Summary

Batch: B161471  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161471-DUP3	Duplicate, (1623007-39) As	0.73		0.71	µg/L		2% 20
B161471-MS3	Matrix Spike, (1623007-39) As	0.73	202.0	194.8	µg/L	96% 75-125	
B161471-MSD3	Matrix Spike Duplicate, (1623007-39) As	0.73	202.0	194.5	µg/L	96% 75-125	0.1% 20
B161471-DUP4	Duplicate, (1623007-43) As	75550		73410	µg/L		3% 20
B161471-MS4	Matrix Spike, (1623007-43) As	75550	202.0	72590	µg/L	NR 75-125	
B161471-MSD4	Matrix Spike Duplicate, (1623007-43) As	75550	202.0	77730	µg/L	NR 75-125	N/C 20
B161471-DUP5	Duplicate, (1623007-45) As	43340		41660	µg/L		4% 20
B161471-MS5	Matrix Spike, (1623007-45) As	43340	202.0	44160	µg/L	NR 75-125	
B161471-MSD5	Matrix Spike Duplicate, (1623007-45) As	43340	202.0	41030	µg/L	NR 75-125	N/C 20



## Accuracy & Precision Summary

Batch: B161509  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161509-SRM1	Certified Reference Material, (NC00370, T191 as SRM) As		4.080	4.063	µg/L	100% 75-125	
B161509-DUP3	Duplicate, (1623007-26) As	34290		31420	µg/L		9% 20
B161509-MS3	Matrix Spike, (1623007-26) As	34290	2525	31860	µg/L	NR 75-125	
B161509-MSD3	Matrix Spike Duplicate, (1623007-26) As	34290	2525	33210	µg/L	NR 75-125	N/C 20
B161509-DUP1	Duplicate, (1623007-30) As	24.43		22.96	µg/L		6% 20
B161509-MS1	Matrix Spike, (1623007-30) As	24.43	252.5	265.9	µg/L	96% 75-125	
B161509-MSD1	Matrix Spike Duplicate, (1623007-30) As	24.43	252.5	263.2	µg/L	95% 75-125	1% 20
B161509-DUP4	Duplicate, (1623007-44) As	54410		55440	µg/L		2% 20
B161509-MS4	Matrix Spike, (1623007-44) As	54410	5051	60010	µg/L	NR 75-125	
B161509-MSD4	Matrix Spike Duplicate, (1623007-44) As	54410	5051	61480	µg/L	NR 75-125	N/C 20
B161509-DUP2	Duplicate, (1623007-60) As	3.765		3.472	µg/L		8% 20
B161509-MS2	Matrix Spike, (1623007-60) As	3.765	252.5	236.2	µg/L	92% 75-125	



## Accuracy & Precision Summary

**Batch:** B161509  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B161509-MSD2	Matrix Spike Duplicate, (1623007-60) As	3.765	252.5	242.9	µg/L	95% 75-125	3% 20



## Accuracy & Precision Summary

Batch: B161544  
 Lab Matrix: Water  
 Method: IC-ICP-MS

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B161544-BS1</b>	<b>Laboratory Fortified Blank, (NC00024)</b>						
	As(III)		5.000	5.024	µg/L	100% 75-125	
	As(V)		5.000	5.156	µg/L	103% 75-125	
	DMAs		3.198	3.235	µg/L	101% 75-125	
<b>B161544-BS2</b>	<b>Laboratory Fortified Blank, (1545039)</b>						
	MMA		5.270	4.513	µg/L	86% 75-125	
<b>B161544-DUP1</b>	<b>Duplicate, (1623007-28)</b>						
	As(III)	33720		33750	µg/L		0.09% 25
	As(V)	10790		10890	µg/L		0.9% 25
	DMAs	ND		ND	µg/L		N/C 25
	MMA	ND		ND	µg/L		N/C 25
<b>B161544-MS1</b>	<b>Matrix Spike, (1623007-28)</b>						
	As(III)	33720	20000	54630	µg/L	105% 75-125	
	As(V)	10790	20000	31250	µg/L	102% 75-125	
	DMAs	ND	20840	21050	µg/L	101% 75-125	
	MMA	ND	23460	24090	µg/L	103% 75-125	
<b>B161544-MSD1</b>	<b>Matrix Spike Duplicate, (1623007-28)</b>						
	As(III)	33720	20000	54280	µg/L	103% 75-125	0.6% 25
	As(V)	10790	20000	31260	µg/L	102% 75-125	0.04% 25
	DMAs	ND	20840	20970	µg/L	101% 75-125	0.4% 25
	MMA	ND	23460	24050	µg/L	103% 75-125	0.2% 25



## Method Blanks & Reporting Limits

**Batch:** B161345  
**Matrix:** Water  
**Method:** SM 3500-Fe B mod.  
**Analyte:** Fe(II)

Sample	Result	Units	
B161345-BLK1	-2.0	µg/L	
B161345-BLK2	2.0	µg/L	
B161345-BLK3	-2.0	µg/L	
B161345-BLK4	-2.0	µg/L	
<b>Average:</b>	<b>-1.0</b>		<b>MDL: 5.0</b>
<b>Limit:</b>	<b>15.0</b>		<b>MRL: 15.0</b>



## Method Blanks & Reporting Limits

**Batch:** B161346  
**Matrix:** Water  
**Method:** SM 3500-Fe B mod.  
**Analyte:** Fe(II)

Sample	Result	Units
B161346-BLK1	0.0	µg/L
B161346-BLK2	2.5	µg/L
B161346-BLK3	0.0	µg/L
B161346-BLK4	0.0	µg/L

**Average:** 0.6  
**Limit:** 15.0

**MDL:** 5.0  
**MRL:** 15.0



## Method Blanks & Reporting Limits

**Batch:** B161368  
**Matrix:** Water  
**Method:** SM 3500-Fe B mod.  
**Analyte:** Fe(II)

Sample	Result	Units
B161368-BLK1	0.0	µg/L
B161368-BLK2	2.3	µg/L
B161368-BLK3	2.3	µg/L
B161368-BLK4	0.0	µg/L

**Average:** 1.2  
**Limit:** 15.0

**MDL:** 5.0  
**MRL:** 15.0



## Method Blanks & Reporting Limits

**Batch:** B161470  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units			
B161470-BLK1	-0.0004	µg/L			
B161470-BLK2	0.0004	µg/L			
B161470-BLK3	-0.0005	µg/L			
B161470-BLK4	-0.0006	µg/L			
<b>Average:</b>	<b>0.000</b>		<b>Standard Deviation:</b>	<b>0.000</b>	<b>MDL:</b> 0.006
<b>Limit:</b>	<b>0.040</b>		<b>Limit:</b>	<b>0.006</b>	<b>MRL:</b> 0.040

**Analyte:** Fe

Sample	Result	Units			
B161470-BLK1	0.07	µg/L			
B161470-BLK2	0.07	µg/L			
B161470-BLK3	0.09	µg/L			
B161470-BLK4	0.06	µg/L			
<b>Average:</b>	<b>0.07</b>		<b>Standard Deviation:</b>	<b>0.01</b>	<b>MDL:</b> 0.28
<b>Limit:</b>	<b>0.85</b>		<b>Limit:</b>	<b>0.28</b>	<b>MRL:</b> 0.85

**Analyte:** Mn

Sample	Result	Units			
B161470-BLK1	0.011	µg/L			
B161470-BLK2	0.019	µg/L			
B161470-BLK3	0.015	µg/L			
B161470-BLK4	0.018	µg/L			
<b>Average:</b>	<b>0.016</b>		<b>Standard Deviation:</b>	<b>0.004</b>	<b>MDL:</b> 0.021
<b>Limit:</b>	<b>0.063</b>		<b>Limit:</b>	<b>0.021</b>	<b>MRL:</b> 0.063





## Method Blanks & Reporting Limits

**Batch:** B161471  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units		
B161471-BLK1	0.002	µg/L		
B161471-BLK2	0.003	µg/L		
B161471-BLK3	0.003	µg/L		
B161471-BLK4	0.0005	µg/L		
<b>Average:</b> 0.00			<b>Standard Deviation:</b> 0.00	<b>MDL:</b> 0.008
<b>Limit:</b> 0.08			<b>Limit:</b> 0.01	<b>MRL:</b> 0.08



## Method Blanks & Reporting Limits

**Batch:** B161509  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units		
B161509-BLK1	0.004	µg/L		
B161509-BLK2	0.006	µg/L		
B161509-BLK3	0.004	µg/L		
B161509-BLK4	0.004	µg/L		
<b>Average:</b>	0.005		<b>Standard Deviation:</b>	0.001
<b>Limit:</b>	0.040		<b>Limit:</b>	0.006
			<b>MDL:</b>	0.006
			<b>MRL:</b>	0.040



## Method Blanks & Reporting Limits

**Batch:** B161544  
**Matrix:** Water  
**Method:** IC-ICP-MS  
**Analyte:** As(III)

Sample	Result	Units	
B161544-BLK5	0.00	µg/L	
B161544-BLK6	0.00	µg/L	
B161544-BLK7	0.00	µg/L	
B161544-BLK8	0.00	µg/L	
<b>Average:</b>	<b>0.000</b>		<b>MDL: 0.002</b>
<b>Limit:</b>	<b>0.020</b>		<b>MRL: 0.020</b>

**Analyte:** As(V)

Sample	Result	Units	
B161544-BLK5	0.003	µg/L	
B161544-BLK6	0.002	µg/L	
B161544-BLK7	0.002	µg/L	
B161544-BLK8	0.002	µg/L	
<b>Average:</b>	<b>0.002</b>		<b>MDL: 0.002</b>
<b>Limit:</b>	<b>0.020</b>		<b>MRL: 0.020</b>

**Analyte:** DMAs

Sample	Result	Units	
B161544-BLK5	0.00	µg/L	
B161544-BLK6	0.00	µg/L	
B161544-BLK7	0.001	µg/L	
B161544-BLK8	0.00	µg/L	
<b>Average:</b>	<b>0.000</b>		<b>MDL: 0.003</b>
<b>Limit:</b>	<b>0.021</b>		<b>MRL: 0.021</b>



## Method Blanks & Reporting Limits

**Analyte:** MMAs

Sample	Result	Units	
B161544-BLK5	0.00	µg/L	
B161544-BLK6	0.00	µg/L	
B161544-BLK7	0.003	µg/L	
B161544-BLK8	0.00	µg/L	
<b>Average:</b>	0.001		<b>MDL:</b> 0.003
<b>Limit:</b>	0.023		<b>MRL:</b> 0.023



## Sample Containers

<b>Lab ID:</b> 1623007-01	<b>Report Matrix:</b> Ground Water	<b>Collected:</b> 05/31/2016
<b>Sample:</b> MW005R-E1	<b>Sample Type:</b> Sample	<b>Received:</b> 06/01/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>
A Bottle HDPE ICP-W	125mL	16-0109
	<b>Preservation</b>	<b>P-Lot</b>
	1% HNO3 (BAL)	1615017
	<b>pH</b>	<b>Ship. Cont.</b>
	<2	Cooler

<b>Lab ID:</b> 1623007-02	<b>Report Matrix:</b> Ground Water	<b>Collected:</b> 05/31/2016
<b>Sample:</b> MW005R-E1	<b>Sample Type:</b> Sample	<b>Received:</b> 06/01/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>
A Bottle HDPE ICP-W	125mL	16-0109
	<b>Preservation</b>	<b>P-Lot</b>
	1% HNO3 (BAL)	1615017
	<b>pH</b>	<b>Ship. Cont.</b>
	<2	Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1623007-03	<b>Report Matrix:</b> Ground Water	<b>Collected:</b> 05/31/2016
<b>Sample:</b> MW006R-E1	<b>Sample Type:</b> Sample	<b>Received:</b> 06/01/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>
A Bottle HDPE ICP-W	125mL	16-0109
	<b>Preservation</b>	<b>P-Lot</b>
	1% HNO3 (BAL)	1615017
	<b>pH</b>	<b>Ship. Cont.</b>
	<2	Cooler

<b>Lab ID:</b> 1623007-04	<b>Report Matrix:</b> Ground Water	<b>Collected:</b> 05/31/2016
<b>Sample:</b> MW006R-E1	<b>Sample Type:</b> Sample	<b>Received:</b> 06/01/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>
A Bottle HDPE ICP-W	125mL	16-0109
	<b>Preservation</b>	<b>P-Lot</b>
	1% HNO3 (BAL)	1615017
	<b>pH</b>	<b>Ship. Cont.</b>
	<2	Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1623007-05	<b>Report Matrix:</b> Ground Water	<b>Collected:</b> 05/31/2016
<b>Sample:</b> MWS06R-E1	<b>Sample Type:</b> Sample	<b>Received:</b> 06/01/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>
A Bottle HDPE ICP-W	125mL	16-0109
	<b>Preservation</b>	<b>P-Lot</b>
	1% HNO3 (BAL)	1615017
	<b>pH</b>	<b>Ship. Cont.</b>
	<2	Cooler

<b>Lab ID:</b> 1623007-06	<b>Report Matrix:</b> Ground Water	<b>Collected:</b> 05/31/2016
<b>Sample:</b> MWS06R-E1	<b>Sample Type:</b> Sample	<b>Received:</b> 06/01/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>
A Bottle HDPE ICP-W	125mL	16-0109
	<b>Preservation</b>	<b>P-Lot</b>
	1% HNO3 (BAL)	1615017
	<b>pH</b>	<b>Ship. Cont.</b>
	<2	Cooler

**Comments:** field filtered



## Sample Containers

<b>Lab ID:</b> 1623007-07		<b>Report Matrix:</b> Ground Water				<b>Collected:</b> 05/31/2016	
<b>Sample:</b> MW003-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/01/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler

<b>Lab ID:</b> 1623007-08		<b>Report Matrix:</b> Ground Water				<b>Collected:</b> 05/31/2016	
<b>Sample:</b> MW003-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/01/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler

**Comments:** field filtered, Container E - client noted top popped off during fill

<b>Lab ID:</b> 1623007-09		<b>Report Matrix:</b> Ground Water				<b>Collected:</b> 05/31/2016	
<b>Sample:</b> MWS03-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/01/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler



## Sample Containers

<b>Lab ID:</b> 1623007-10		<b>Report Matrix:</b> Ground Water				<b>Collected:</b> 05/31/2016	
<b>Sample:</b> MWS03-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/01/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1623007-11		<b>Report Matrix:</b> Ground Water				<b>Collected:</b> 05/31/2016	
<b>Sample:</b> MW002R-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/01/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler

**Comments:** field filtered



## Sample Containers

<b>Lab ID:</b> 1623007-13		<b>Report Matrix:</b> Ground Water				<b>Collected:</b> 05/31/2016	
<b>Sample:</b> MW004-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/01/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler

<b>Lab ID:</b> 1623007-14		<b>Report Matrix:</b> Ground Water				<b>Collected:</b> 05/31/2016	
<b>Sample:</b> MW004-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/01/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1623007-15		<b>Report Matrix:</b> Ground Water				<b>Collected:</b> 05/31/2016	
<b>Sample:</b> B003R-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/01/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler

<b>Lab ID:</b> 1623007-16		<b>Report Matrix:</b> Ground Water				<b>Collected:</b> 05/31/2016	
<b>Sample:</b> B003R-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/01/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler

**Comments:** filtered at BAL





## Sample Containers

**Lab ID:** 1623007-17  
**Sample:** MW011-E1  
**Report Matrix:** Ground Water  
**Sample Type:** Sample  
**Collected:** 05/31/2016  
**Received:** 06/01/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler

**Lab ID:** 1623007-18  
**Sample:** MW011-E1  
**Report Matrix:** Ground Water  
**Sample Type:** Sample  
**Collected:** 05/31/2016  
**Received:** 06/01/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler

**Comments:** field filtered

**Lab ID:** 1623007-19  
**Sample:** MW001-E1  
**Report Matrix:** Ground Water  
**Sample Type:** Sample  
**Collected:** 05/31/2016  
**Received:** 06/01/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler

**Lab ID:** 1623007-20  
**Sample:** MW001-E1  
**Report Matrix:** Ground Water  
**Sample Type:** Sample  
**Collected:** 05/31/2016  
**Received:** 06/01/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler

**Comments:** field filtered



## Sample Containers

<b>Lab ID:</b> 1623007-21		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> B005R-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2

<b>Lab ID:</b> 1623007-22		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> B005R-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2

**Comments:** field filtered

<b>Lab ID:</b> 1623007-23		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> B006R-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2

<b>Lab ID:</b> 1623007-24		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> B006R-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2

**Comments:** field filtered



## Sample Containers

<b>Lab ID:</b> 1623007-25		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> MW013-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2

<b>Lab ID:</b> 1623007-26		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> MW013-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2

**Comments:** field filtered

<b>Lab ID:</b> 1623007-27		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> MW010-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2



## Sample Containers

<b>Lab ID:</b> 1623007-28		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> MW010-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2

**Comments:** field filtered

<b>Lab ID:</b> 1623007-29		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> MW008-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2

**Comments:** field filtered

<b>Lab ID:</b> 1623007-31		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> MW007-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2



## Sample Containers

<b>Lab ID:</b> 1623007-32		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> MW007-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2

**Comments:** field filtered

<b>Lab ID:</b> 1623007-33		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> WCTSW001B-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2

**Comments:** field filtered

<b>Lab ID:</b> 1623007-34		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> WCTSW001B-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2

**Comments:** field filtered



## Sample Containers

<b>Lab ID:</b> 1623007-35		<b>Report Matrix:</b> Water			<b>Collected:</b> 06/01/2016	
<b>Sample:</b> WCTSW002B-E1		<b>Sample Type:</b> Sample			<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2 Cooler 2

<b>Lab ID:</b> 1623007-36		<b>Report Matrix:</b> Water			<b>Collected:</b> 06/01/2016	
<b>Sample:</b> WCTSW002B-E1		<b>Sample Type:</b> Sample			<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2 Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2 Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2 Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided	Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided	Cooler 2

**Comments:** field filtered

<b>Lab ID:</b> 1623007-37		<b>Report Matrix:</b> Water			<b>Collected:</b> 06/01/2016	
<b>Sample:</b> WCTSW003B-E1		<b>Sample Type:</b> Sample			<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2 Cooler 2



## Sample Containers

<b>Lab ID:</b> 1623007-38		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> WCTSW003B-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2

**Comments:** field filtered

<b>Lab ID:</b> 1623007-39		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> USSW001-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2

**Comments:** field filtered



## Sample Containers

<b>Lab ID:</b> 1623007-41		<b>Report Matrix:</b> Water			<b>Collected:</b> 06/01/2016	
<b>Sample:</b> BWSW001-E1		<b>Sample Type:</b> Sample			<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2 Cooler 2

<b>Lab ID:</b> 1623007-42		<b>Report Matrix:</b> Water			<b>Collected:</b> 06/01/2016	
<b>Sample:</b> BWSW001-E1		<b>Sample Type:</b> Sample			<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2 Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2 Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2 Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided	Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided	Cooler 2

**Comments:** field filtered

<b>Lab ID:</b> 1623007-43		<b>Report Matrix:</b> Water			<b>Collected:</b> 06/01/2016	
<b>Sample:</b> B001R-E1		<b>Sample Type:</b> Sample			<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2 Cooler 2





## Sample Containers

<b>Lab ID:</b> 1623007-44		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> B001R-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2

**Comments:** field filtered

<b>Lab ID:</b> 1623007-45		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> HC002-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2

**Comments:** field filtered



## Sample Containers

<b>Lab ID:</b> 1623007-47		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> MW012-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2

<b>Lab ID:</b> 1623007-48		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> MW012-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2

**Comments:** field filtered

<b>Lab ID:</b> 1623007-49		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> MW009-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2



## Sample Containers

<b>Lab ID:</b> 1623007-50		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/01/2016	
<b>Sample:</b> MW009-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 2
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 2
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 2

**Comments:** field filtered

<b>Lab ID:</b> 1623007-51		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW001B-40-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3

**Comments:** field filtered



## Sample Containers

<b>Lab ID:</b> 1623007-53		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW001B-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3

<b>Lab ID:</b> 1623007-54		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW001B-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3

**Comments:** field filtered

<b>Lab ID:</b> 1623007-55		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW001A-40-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3



## Sample Containers

<b>Lab ID:</b> 1623007-56		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW001A-40-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3

**Comments:** field filtered

<b>Lab ID:</b> 1623007-57		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW001A-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3

**Comments:** field filtered

<b>Lab ID:</b> 1623007-58		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW001A-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3



## Sample Containers

<b>Lab ID:</b> 1623007-59		<b>Report Matrix:</b> Water			<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW002B-40-E1		<b>Sample Type:</b> Sample			<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2   Cooler 3

<b>Lab ID:</b> 1623007-60		<b>Report Matrix:</b> Water			<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW002B-40-E1		<b>Sample Type:</b> Sample			<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2   Cooler 3
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2   Cooler 3
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2   Cooler 3
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided	Cooler 3
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided	Cooler 3

**Comments:** field filtered

<b>Lab ID:</b> 1623007-61		<b>Report Matrix:</b> Water			<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW002B-10-E1		<b>Sample Type:</b> Sample			<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2   Cooler 3



## Sample Containers

<b>Lab ID:</b> 1623007-62		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW002B-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3

**Comments:** field filtered

<b>Lab ID:</b> 1623007-63		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW003B-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3

**Comments:** field filtered

<b>Lab ID:</b> 1623007-64		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW003B-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3

**Comments:** field filtered



## Sample Containers

<b>Lab ID:</b> 1623007-65		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW003A-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3

<b>Lab ID:</b> 1623007-66		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW003A-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3

**Comments:** field filtered

<b>Lab ID:</b> 1623007-67		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW002A-40-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3





## Sample Containers

<b>Lab ID:</b> 1623007-68		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW002A-40-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3

**Comments:** field filtered

<b>Lab ID:</b> 1623007-69		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW002A-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 3
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 3

**Comments:** field filtered

<b>Lab ID:</b> 1623007-70		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPWSMB-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3



## Sample Containers

<b>Lab ID:</b> 1623007-71		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/02/2016	
<b>Sample:</b> WCTPW SMB-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/02/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 3

**Comments:** field filtered

<b>Lab ID:</b> 1623007-72		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTPW003B-40-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 4

<b>Lab ID:</b> 1623007-73		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTPW003B-40-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 4
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4

**Comments:** field filtered

<b>Lab ID:</b> 1623007-74		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTPW003A-40-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 4



## Sample Containers

<b>Lab ID:</b> 1623007-75		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTPW003A-40-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 4
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4

**Comments:** field filtered

<b>Lab ID:</b> 1623007-76		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTPW004B-40-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 4
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4

**Comments:** field filtered



## Sample Containers

<b>Lab ID:</b> 1623007-78		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTPW004A-40-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 4

<b>Lab ID:</b> 1623007-79		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTPW004A-40-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 4
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4

**Comments:** field filtered

<b>Lab ID:</b> 1623007-80		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTPW004B-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 4



## Sample Containers

<b>Lab ID:</b> 1623007-81		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTPW004B-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 4
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4

**Comments:** field filtered

<b>Lab ID:</b> 1623007-82		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTPW004A-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 4
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4

**Comments:** field filtered

<b>Lab ID:</b> 1623007-83		<b>Report Matrix:</b> Water				<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTPW004A-10-E1		<b>Sample Type:</b> Sample				<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 4
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4

**Comments:** field filtered



## Sample Containers

<b>Lab ID:</b> 1623007-84		<b>Report Matrix:</b> Water			<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTSW004B-E1		<b>Sample Type:</b> Sample			<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2 Cooler 4

<b>Lab ID:</b> 1623007-85		<b>Report Matrix:</b> Water			<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTSW004B-E1		<b>Sample Type:</b> Sample			<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2 Cooler 4
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2 Cooler 4
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2 Cooler 4
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided	Cooler 4
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided	Cooler 4

**Comments:** field filtered

<b>Lab ID:</b> 1623007-86		<b>Report Matrix:</b> Water			<b>Collected:</b> 06/03/2016	
<b>Sample:</b> WCTSW504B-E1		<b>Sample Type:</b> Sample			<b>Received:</b> 06/03/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2 Cooler 4



## Sample Containers

**Lab ID:** 1623007-87

**Sample:** WCTSW504B-E1

**Report Matrix:** Water

**Sample Type:** Sample

**Collected:** 06/03/2016

**Received:** 06/03/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0109	1% HNO3 (BAL)	1615017	<2	Cooler 4
B	Vial Glass-SP	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
C	EXTRA_VOL	40mL	not provided	1.6mL 6N HCL (PP)	1615059	<2	Cooler 4
D	Bottle HDPE As-SP	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4
E	EXTRA_VOL	6mL vacutainer	16-0111	EDTA (PP)	not provided		Cooler 4

**Comments:** field filtered



## Shipping Containers

### Cooler

**Received:** June 1, 2016 12:15  
**Tracking No:** n/a via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 2.0 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#5

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 2

**Received:** June 2, 2016 12:30  
**Tracking No:** n/a via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 5.0 °C

**Description:** Cooler 2  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#6

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 3

**Received:** June 2, 2016 17:15  
**Tracking No:** n/a via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 1.3 °C

**Description:** Cooler 3  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#5

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 4

**Received:** June 3, 2016 14:30  
**Tracking No:** n/a via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 8.7 °C

**Description:** Cooler 4  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#5

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes





55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

Field Sampler(s):  
**PP, RF, SK, EH**

### Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
Project Name: Parcel 15 - POT	SDG: _____	TestAmerica		Brooks <input checked="" type="checkbox"/>
Project # or PO #: 603.002.010	Custody Seals intact?	Analysis Requested		
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Brooks - Ben Wozniak - 206-753-6158  TestAmerica - Christabel Escarez - 253.248.4975
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	
Report to email: echughes@gsiws.com, cryals@gsiws.com	Therm ID No.: _____ Therm Exp. _____	Major Anions, Alkalinity, Nitrate/Nitrite (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	
Analysis Turnaround Time:		Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	
Standard 21 day TAT on Most Analyses		Pentachlorophenol and pH	Arsenic (total)	
Rush 5 day on Dissolved Metals (see notes)		Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	
		Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***		

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrite (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	Sample Specific Notes
MW005R-EI	5/31	1355	486	G	GW	7	X	X	X							X	X	X		
MW006R-EI	5/31	1410	710	G	GW	7	X	X	X							X	X	X		
MW506R-EI	5/31	1410	710	G	GW	5	X	X	X							X	X	X		
MW003-EI	5/31	1620	694	G	GW	16	X	X	X	X	X	X	X	X	X	X	X	X	X	(no PCP)
MW503-EI	5/31	1630	695	G	GW	15	X	X	X	X	X	X	X	X	X	X	X	X	X	6 bottles Brooks
MW002R-EI	5/31	1630	460	G	GW	15	X	X	X	X	X	X	X	X	X	X	X	X	X	9 TA
MW004-EI	5/31	1845	135	G	GW	15	X	X	X	X	X	X	X	X	X	X	X	X	X	6 B
B003R-EI	5/31	1810	4260	G	GW	5	X	X	X							X	X	X	X	9 TA
MW011-EI	5/31	1540	2224	G	GW	5	X	X	X							X	X	X	X	2 B
MW001-EI	5/31	1855	799	G	GW	15	X	X	X	X	X	X	X	X	X	X	X	X	X	3 TA

**Possible Hazard Identification:**  
Are samples hazardous?  
If yes, select hazard(s):

Received by: *Erin Hughes* Date/Time: 6/1/16 8:00  
Relinquished by: *Erin Hughes* Date/Time: 6/1/16 8:00 AM

Received by: *[Signature]* Date/Time: *[Blank]*  
Relinquished by: *[Signature]* Date/Time: 6/1/16 1145

Received in Laboratory by: *[Signature]* Date/Time: 6/1/16 12:00  
Shipped Via: *[Blank]* Tracking #: *[Blank]*

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 \*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
 Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

① Test America to carrier samples to Brooks



55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

Field Sampler(s):

GSI

# Chain of Custody Record

<b>Client Contact</b>		<b>For Lab Use Only:</b>					<b>Laboratory</b>										<b>Lab PM</b>				
Project Name: Parcel 15 - POT		SDG: _____					TestAmerica					Brooks					Brooks- Ben Wozniak- 206-753-6158				
Project # or PO #: 603.002.010		Custody Seals intact?					Analysis Requested											TestAmerica - Christabel Escarez- 253.248.4975			
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered?					Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***		Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	Sample Specific Notes
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																			
Report to email: echughes@gsws.com, cryals@gsws.com		Therm ID No.: _____ Therm Exp. _____																			
<b>Analysis Turnaround Time:</b>																					
Standard 21 day TAT on Most Analyses																					
Rush 5 day on Dissolved Metals (see notes)																					
<b>Sample Identification</b>		Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.														
BoosR-EI		6/1/16	930	544	G	W	6														
BoobR-EI		↓	1125	2223	↓	↓	2														
MWO13-EI		↓	1245	1115	↓	↓	6														
MWO10-EI		↓	1430	1360	↓	↓	6														
MWO08-EI		↓	1540	2163	↓	↓	2														
MWO07-EI		↓	1745	2342	↓	↓	6														

**Possible Hazard Identification:**

Are samples hazardous? *B Shell*

If yes, select hazard(s): *6.2.16 U910 SEATA*

Received by: *[Signature]* Date/Time: *6/2/16 0910*

Relinquished by: *[Signature]* Date/Time: *6/2/16 1227*

Received in Laboratory by: *[Signature]* Date/Time: *6/2/16 12:30*

Shipped Via: \_\_\_\_\_ Tracking #: \_\_\_\_\_

**Special Instructions/QC Requirements**

\*Major Cations include calcium, magnesium, potassium, and sodium.

\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.

\*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.

Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.

Please contact Cindy Ryals at 971-200-8531 with any questions.



55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

Field Sampler(s):

*ECH, SR, RF, PP*

### Chain of Custody Record

Client Contact		For Lab Use Only:					Laboratory											Lab PM		
Project Name: Parcel 15 - POT		SDG: _____					TestAmerica					Brooks						Brooks- Ben Wozniak- 206-753-6158		
Project # or PO #: 603.002.010		Custody Seals intact?					Analysis Requested													
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered?					Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	TestAmerica - Christabel Escarez- 253.248.4975
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp : _____ °C																		
Report to email: echughes@gslws.com, cryals@gslws.com		Therm ID No.: _____ Therm Exp. _____																Sample Specific Notes		
Analysis Turnaround Time: Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals (see notes)																				
Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.														
WCTSW001B-EI	6/1	915	3773	G	SW	13	X	X	X	X	X				X	X	X	X		
WCTSW002B-EI	6/1	1045	2593	G	SW	13	X	X	X	X	X				X	X	X	X		
WCTSW003B-EI	6/1	1030	2625	G	SW	13	X	X	X	X	X				X	X	X	X		
<del>WCT</del> USSW001-EI	6/1	1200	199	G	SW	13	X	X	X	X	X				X	X	X	X		
BWSW001-EI	6/1	1430	28,931	G	SW	13	X	X	X	X	X				X	X	X	X		
BOOIR-EI	6/1	1500	1572	G	GW	13	X	X	X	X	X				X	X	X	X		
HCOO2-EI	6/1	1630	1110	G	GW	13	X	X	X	X	X				X	X	X	X		
MW012-EI	6/1	1620	2012	G	SW	13	X	X	X	X	X				X	X	X	X		
MW009-EI	6/1	1745	2004	G	GW	13	X	X	X	X	X				X	X	X	X		

**Possible Hazard Identification:**  
Are samples hazardous? *B. L. W.* *6-2-16 0910 SEATT*

Received by: *B. L. W.* Date/Time: *6/2/16 0910*

Relinquished by: *[Signature]* Date/Time: *6/2/16 1227*

Received in Laboratory by: *[Signature]* Date/Time: *6/2/16 12:30*

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
*[Signature]* *for GSI* *6/2/16 0910*

Shipped Via: \_\_\_\_\_ Tracking #: \_\_\_\_\_

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 \*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
 Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

### Chain of Custody Record

<b>Client Contact</b>		<b>For Lab Use Only:</b>					<b>Laboratory</b>										<b>Lab PM</b>													
Project Name: Parcel 15 - POT		SDG: _____					<b>TestAmerica</b>										Brooks													
Project # or PO #: 603.002.010		Custody Seals intact?					<b>Analysis Requested</b>										Brooks - Ben Wozniak - 206-753-6158													
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered?					<table border="1"> <tr> <td>Total Organic Carbon</td> <td>Dissolved Organic Carbon (field filtered)</td> <td>Sulfide (dissolved; field filtered)</td> <td>Major Cations (dissolved; field filtered)*</td> <td>Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**</td> <td>Orthophosphate (dissolved; field filtered)</td> <td>Arsenic (total)</td> <td>Arsenic, Iron, and Manganese (dissolved; field filtered)</td> <td>Pentachlorophenol and pH</td> <td>Arsenic (total)</td> <td>Arsenic, Iron, and Manganese (dissolved; field filtered)***</td> <td>Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)</td> <td>Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***</td> </tr> </table>										Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	TestAmerica - Christabel Escarez - 253.248.4975
Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	Arsenic (total)											Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***								
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																												
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																												
<b>Analysis Turnaround Time:</b>																														
Standard 21 day TAT on Most Analyses																														
Rush 5 day on Dissolved Metals (see notes)																														

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	Sample Specific Notes	
BOOSR-E1	6/1/16	930	544	G	W	9	X	X	X	X	X	X			X						
BOOBR-E1		1125	2223			3	X	X	X												
MW013-E1		1245	1115			8	X	X	X	X	X	X	X	X							
MW010-E1		1430	1360			9	X	X	X	X	X	X									no PCP
MW008-E2		1540	2163			3	X	X	X												
MW007-E1		1745	2342			7	X	X	X	X	X	X									

<b>Possible Hazard Identification:</b>		<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>																			
Are samples hazardous? <i>B. Shell</i>		<i>Number for GSI 6/2/16 0910</i>																			
If yes, select hazard(s):																					
Received by: <i>B. Shell</i>		Date/Time: <i>6-2-16</i>		<i>0910</i>		<i>SEA TA</i>															
Received by:		Date/Time:																			
Received in Laboratory by: <i>Don Walker</i>		Date/Time: <i>6/2/16</i>		<i>12:30</i>																	
Special Instructions/QC Requirements																					

\*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 \*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 35 ug/L.  
 Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

Brooks

BAI Report 1623007

Field Sampler(s):  
PP, RF, SK, EH

### Chain of Custody Record

Client Contact		For Lab Use Only:					Laboratory										Lab PM			
Project Name: Parcel 15 - POT		SDG: _____					TestAmerica					Brooks					Brooks - Ben Wozniak - 206-753-6158			
Project # or PO #: 603.002.010		Custody Seals intact?					Analysis Requested											TestAmerica - Christabel Escarez - 253.248.4975		
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered?					Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)**		Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)**
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																		
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																		
Analysis Turnaround Time:																				
Standard 21 day TAT on Most Analyses																				
Rush 5 day on Dissolved Metals (see notes)																				
Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.														
WCT PW001B-40-EI	6/2	956	8921	G	PW	6										X	X	X	X	
WCT PW001B-10-EI	1	915	2279	G	PW	6										X	X	X	X	
WCT PW001A-40-EI	1	945	2497	G	PW	6										X	X	X	X	
WCT PW001A-10-EI		1015	2324	G	PW	6										X	X	X	X	
WCT PW002B-40-EI		1045	17539	G	PW	6										X	X	X	X	
WCT PW002B-10-EI		1120	7185	G	PW	6										X	X	X	X	
WCT PW003B-10-EI		1245	7457	G	PW	6										X	X	X	X	
WCT PW003A-10-EI	Y	1300		G	PW	6										X	X	X	X	
WCT PW002A-40-EI	Y	1145	2345	G	PW	6										X	X	X	X	
WCT PW002A-10-EI	V	1230	-NM-	G	PW	6.5										X	X	X	X	No Total Low Volume
WCT PWSMB-EI	6/2	1430	0	G	W	2										X	X			

<b>Possible Hazard Identification:</b>		Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)	
Are samples hazardous?		Emi Hughes 6/2/16 335	
If yes, select hazard(s):		Relinquished by: 6/2/16 17:15	
Received by: Justin	Date/Time: 3:35 PM	Relinquished by:	Date/Time:
Received by:	Date/Time:	Relinquished by:	Date/Time:
Received in Laboratory by: Jer Waller	Date/Time: 6/2/16 17:15	Shipped Via: Thunderdog Carriers	Tracking #:

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 \*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
 Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



55 SW Yamhill St. Suite 300  
Portland, Oregon 97204  
503.239.8700

Brooks

BAL Report 1623007

# Chain of Custody Record

Field Sampler(s):  
ECH, PP, SK

Client Contact		For Lab Use Only:					Laboratory										Lab PM				
Project Name: Parcel 15 - POT		SDG: _____					TestAmerica					Brooks					Brooks - Ben Wozniak - 206-753-6158				
Project # or PO #: 603.002.010		Custody Seals intact?					Analysis Requested											TestAmerica - Christabel Escarez - 253.248.4975			
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered?					Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***		Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	Sample Specific Notes
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																			
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																			
Analysis Turnaround Time:																					
Standard 21 day TAT on Most Analyses																					
Rush 5 day on Dissolved Metals (see notes)																					
Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.															
WCTPW003B-40-E1	6/3	900	5803	G	PW	6															
WCTPW003A-40-E1	6/3	930	29184	G	PW	6										X	X	X	X		
WCTPW004B-40-E1	6/3	1030	4039	G	PW	6										X	X	X	X		
WCTPW004A-40-E1	6/3	1120	520	G	PW	6										X	X	X	X		
WCTPW004B-10E1	6/3	1150	12904	G	PW	6										X	X	X	X		
WCTPW004A-10E1	6/3	1230	NM	G	PW	6										X	X	X	X		
WCTSW004B-E1	6/3	1220	559	G	SW	6										X	X	X	X		
WCTSW504B-E1	6/3	1220	559	G	SW	6										X	X	X	X		

**Possible Hazard Identification:**  
Are samples hazardous?  
If yes, select hazard(s):

Received by: *[Signature]* Date/Time: 6-3-16 1:00  
Relinquished by: *[Signature]* Date/Time: 6/3/16 1300

Received by: *[Signature]* Date/Time: 6-3-16 1420  
Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Shipped Via: *Thunderdog* Tracking #: \_\_\_\_\_

**Special Instructions/QC Requirements**  
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
\*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
Please contact Cindy Ryals at 971-200-8531 with any questions.



18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • info@brooksapplied.com

September 16, 2016

GSI Water Solutions, Inc.  
ATTN: Cindy Ryals  
55 SW Yamhill St. Suite 300  
Portland OR 97204

RE: Project GSI-PR1601b

Client Project: Parcel 15 – POT (603.002.010)

Ms. Ryals,

On May 11<sup>th</sup> through May 20<sup>th</sup>, 2016, Brooks Applied Labs (BAL) received forty (40) soil/sediment samples. The temperature of samples received on May 20<sup>th</sup>, in Cooler 6, was 7.5 °C and exceeded the recommended temperature range of 0 – 4 °C ± 2 °C. The temperature of all other shipments were within the recommended limits. All samples were received and stored according to BAL SOPs and EPA methodology.

Shortly after receipt, all submitted core samples were unpacked in a glove box maintained under anoxic conditions, split into appropriate sample containers, and then stored according to BAL SOPs. All sample fractions designated for arsenic (As) speciation were frozen pending the client's decision on which samples to analyze. On August 10, 2016 the client notified BAL that twelve (12) samples required As speciation. This report only contains the results for the twelve samples for which the client requested As speciation.

#### Arsenic Speciation by IC-ICP-CRC-MS

An aliquot of each solid designated for As speciation was extracted with a phosphoric acid solution, which has historically been demonstrated to target adsorbed arsenite [As(III)] in most sample matrices. A separate aliquot of each soil sample was also extracted with a phosphate solution (Batch B162047), which has historically been demonstrated to target adsorbed arsenate [As(V)], monomethylarsonic acid [MMAs], and dimethylarsinic acid [DMAs] in most sample matrices. All sample preparation was performed in a glove box maintained under anoxic conditions. The resulting extracts were analyzed for arsenite, arsenate, monomethylarsonic acid, and dimethylarsinic acid via ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS).

While the applied phosphoric acid extraction has historically been effective at targeting adsorbed arsenite in most soils and sediments, during the analyses of these extracts it was identified that one or more components of the sample matrices (e.g., sulfides) appeared to be reacting with the extraction solution to form additional (unknown) arsenic species in the extracts. It was suspected by this project manager and BAL's Technical Director that some of these unknown arsenicals were interfering with the quantitation of arsenite in the phosphoric acid extracts due to potential co-elution with arsenite. Consequently, results for arsenite have instead been reported from the phosphate extracts.

During the analysis of the phosphate extracts, it was observed that the matrix spikes prepared with arsenite (*i.e.*, B162047-MS2, B162047-MSD2, B162047-MS4, and B162047-MSD4) all recovered below the method detection limit. Instead, it was observed that the added arsenite spikes were quantitatively recovered as arsenate (109% for B162047-MS2, 106% for B162047-MSD2, 104% for B162047-MS4,

and 98% for B162047-MSD4; data not included in the attached *Accuracy & Precision Summary* pages). These quality control results suggest that arsenite was oxidized to arsenate during the applied phosphate extraction.

Given the species conversion observed in the phosphoric acid extracts and the oxidation of arsenite to arsenate observed in the phosphate extracts, all results for arsenite and arsenate have been qualified **J-1** as estimated. It is the recommendation of Brooks Applied Labs that these reported arsenite and arsenate concentrations be treated *not* as results for these individual species, but rather that the sum of the two concentrations be interpreted as the extractable inorganic arsenic fraction associated with each sample.

The relative percent difference (RPD) of the method duplicate identified as B162047-DUP2 was above the control limit of 25% for arsenate (30%). Due to the elevated variability observed for this duplicate set, the arsenate result for the native sample *WCTSD001B-40-50* has been qualified (**M**) to indicate that this result is estimated.

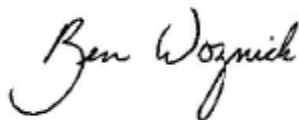
All data was reported without further qualification and all other associated quality control sample results met the acceptance criteria.

The results were *not* method blank corrected, as described in the calculations section of the relevant BAL SOPs, and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

Instances where the matrix spike/matrix spike duplicate (MS/MSD) sets were spiked at a concentration less than 25% of the native sample result or recovered below the MDL, the recoveries were not reported (**NR**).

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information please see the *Report Information* page in your report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,



Ben Wozniak  
Project Manager  
ben@brooksapplied.com





## Report Information

### Laboratory Accreditation

BAL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BAL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksapplied.com/resources/certificates-permits/>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BAL</b>	Brooks Applied Labs	<b>MS</b>	matrix spike
<b>BLK</b>	method blank	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCB</b>	continuing calibration blank	<b>N/C</b>	not calculated
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>D</b>	dissolved fraction	<b>RPD</b>	relative percent difference
<b>DUP</b>	duplicate	<b>SCV</b>	secondary calibration verification
<b>IBL</b>	instrument blank	<b>SOP</b>	standard operating procedure
<b>ICV</b>	initial calibration verification	<b>SRM</b>	standard reference material
<b>MDL</b>	method detection limit	<b>T</b>	total fraction
<b>MRL</b>	method reporting limit	<b>TR</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>J</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J-1</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Applied Labs, those found in the EPA SOW\_ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BAL.



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
MWS00SR-10.5-11.5	1620033-01	Soil/Sediment	Sample	05/09/2016	05/11/2016
MWS008-11.5-12.5	1620033-02	Soil/Sediment	Sample	05/09/2016	05/11/2016
MWS011-13-14	1620033-03	Soil/Sediment	Sample	05/10/2016	05/11/2016
MWS013-12.5-13.5	1620033-04	Soil/Sediment	Sample	05/10/2016	05/11/2016
MWS010-12-13	1620033-05	Soil/Sediment	Sample	05/10/2016	05/11/2016
MWS007-9-10	1620033-06	Soil/Sediment	Sample	05/11/2016	05/13/2016
MWS009-11-12	1620033-07	Soil/Sediment	Sample	05/11/2016	05/13/2016
MWS012-11.5-12.5	1620033-08	Soil/Sediment	Sample	05/12/2016	05/13/2016
TBS006-13-14	1620033-09	Soil/Sediment	Sample	05/12/2016	05/13/2016
TBS004-12-13	1620033-10	Soil/Sediment	Sample	05/12/2016	05/13/2016
TBS008-13-14	1620033-11	Soil/Sediment	Sample	05/13/2016	05/13/2016
TBS009-7.4-8.4	1620033-12	Soil/Sediment	Sample	05/13/2016	05/13/2016
TBS009-8.8-9.8	1620033-13	Soil/Sediment	Sample	05/13/2016	05/13/2016
TBS009-12-13	1620033-14	Soil/Sediment	Sample	05/13/2016	05/13/2016
TBS001-11-12	1620033-15	Soil/Sediment	Sample	05/16/2016	05/18/2016
TBS002-12.5-13.5	1620033-16	Soil/Sediment	Sample	05/16/2016	05/18/2016
TBS003-14-15	1620033-17	Soil/Sediment	Sample	05/17/2016	05/18/2016
TBS005-17-18	1620033-18	Soil/Sediment	Sample	05/17/2016	05/18/2016
TPS002-0.5-1.5	1620033-19	Soil/Sediment	Sample	05/17/2016	05/18/2016
TBS007-16.5-17.5	1620033-20	Soil/Sediment	Sample	05/17/2016	05/18/2016
TPS001-0.5-1.5	1620033-21	Soil/Sediment	Sample	05/17/2016	05/18/2016
TPS001F-1.5-2.5	1620033-22	Soil/Sediment	Sample	05/17/2016	05/18/2016
TPS002-10.5-12.5	1620033-23	Soil/Sediment	Sample	05/17/2016	05/18/2016
TPS001TB-12-13	1620033-24	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD004B-0-10	1620033-25	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD003A-0-10	1620033-26	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD003A-40-50	1620033-27	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD003B-0-10	1620033-28	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD003B-40-50	1620033-29	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD002A-0-10	1620033-30	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD002A-36-46	1620033-31	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD002B-0-10	1620033-32	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD002B-40-50	1620033-33	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD001A-0-10	1620033-34	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD001A-40-50	1620033-35	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD001B-0-10	1620033-36	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD001B-40-50	1620033-37	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD004A-40-50	1620033-38	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD004B-40-50	1620033-39	Soil/Sediment	Sample	05/18/2016	05/20/2016
WCTSD004A-0-10	1620033-40	Soil/Sediment	Sample	05/18/2016	05/20/2016

**Project ID:** GSI-PR1601b Solids (Totals)  
**PM:** Ben Wozniak



BAL Report 1620033B  
**Client PM:** Cindy Ryals

## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
As(III)	Soil/Sediment	IC-ICP-MS	08/25/2016	08/27/2016	B162047	1600979
As(V)	Soil/Sediment	IC-ICP-MS	08/25/2016	08/27/2016	B162047	1600979
DMAs	Soil/Sediment	IC-ICP-MS	08/25/2016	08/27/2016	B162047	1600979
MMAAs	Soil/Sediment	IC-ICP-MS	08/25/2016	08/27/2016	B162047	1600979



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MWS007-9-10</b>										
1620033-06	As(III)	Soil/Sediment	dry	≤ 0.007	J-1, U	0.007	0.06	mg/kg	B162047	1600979
1620033-06	As(V)	Soil/Sediment	dry	0.98	J-1	0.01	0.06	mg/kg	B162047	1600979
1620033-06	DMAs	Soil/Sediment	dry	≤ 0.006	U	0.006	0.06	mg/kg	B162047	1600979
1620033-06	MMAs	Soil/Sediment	dry	0.009	J	0.008	0.07	mg/kg	B162047	1600979
<b>MWS009-11-12</b>										
1620033-07	As(III)	Soil/Sediment	dry	≤ 0.008	J-1, U	0.008	0.06	mg/kg	B162047	1600979
1620033-07	As(V)	Soil/Sediment	dry	0.40	J-1	0.01	0.06	mg/kg	B162047	1600979
1620033-07	DMAs	Soil/Sediment	dry	≤ 0.006	U	0.006	0.06	mg/kg	B162047	1600979
1620033-07	MMAs	Soil/Sediment	dry	≤ 0.009	U	0.009	0.07	mg/kg	B162047	1600979
<b>MWS010-12-13</b>										
1620033-05	As(III)	Soil/Sediment	dry	≤ 0.08	J-1, U	0.08	0.65	mg/kg	B162047	1600979
1620033-05	As(V)	Soil/Sediment	dry	124	J-1	0.12	0.65	mg/kg	B162047	1600979
1620033-05	DMAs	Soil/Sediment	dry	0.16	J	0.07	0.68	mg/kg	B162047	1600979
1620033-05	MMAs	Soil/Sediment	dry	0.58	J	0.09	0.77	mg/kg	B162047	1600979
<b>MWS012-11.5-12.5</b>										
1620033-08	As(III)	Soil/Sediment	dry	≤ 0.008	J-1, U	0.008	0.06	mg/kg	B162047	1600979
1620033-08	As(V)	Soil/Sediment	dry	0.34	J-1	0.01	0.06	mg/kg	B162047	1600979
1620033-08	DMAs	Soil/Sediment	dry	≤ 0.007	U	0.007	0.07	mg/kg	B162047	1600979
1620033-08	MMAs	Soil/Sediment	dry	≤ 0.009	U	0.009	0.08	mg/kg	B162047	1600979
<b>MWS013-12.5-13.5</b>										
1620033-04	As(III)	Soil/Sediment	dry	0.02	J-1, J	0.009	0.07	mg/kg	B162047	1600979
1620033-04	As(V)	Soil/Sediment	dry	1.63	J-1	0.01	0.07	mg/kg	B162047	1600979
1620033-04	DMAs	Soil/Sediment	dry	0.01	J	0.007	0.07	mg/kg	B162047	1600979
1620033-04	MMAs	Soil/Sediment	dry	0.02	J	0.01	0.08	mg/kg	B162047	1600979
<b>TBS003-14-15</b>										
1620033-17	As(III)	Soil/Sediment	dry	0.009	J-1, J	0.008	0.06	mg/kg	B162047	1600979
1620033-17	As(V)	Soil/Sediment	dry	0.94	J-1	0.01	0.06	mg/kg	B162047	1600979
1620033-17	DMAs	Soil/Sediment	dry	≤ 0.006	U	0.006	0.06	mg/kg	B162047	1600979
1620033-17	MMAs	Soil/Sediment	dry	0.02	J	0.009	0.07	mg/kg	B162047	1600979



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>TBS005-17-18</b>										
1620033-18	As(III)	Soil/Sediment	dry	≤ 0.009	J-1, U	0.009	0.07	mg/kg	B162047	1600979
1620033-18	As(V)	Soil/Sediment	dry	0.72	J-1	0.01	0.07	mg/kg	B162047	1600979
1620033-18	DMAs	Soil/Sediment	dry	≤ 0.007	U	0.007	0.07	mg/kg	B162047	1600979
1620033-18	MMAs	Soil/Sediment	dry	≤ 0.01	U	0.01	0.08	mg/kg	B162047	1600979
<b>TBS007-16.5-17.5</b>										
1620033-20	As(III)	Soil/Sediment	dry	≤ 0.007	J-1, U	0.007	0.05	mg/kg	B162047	1600979
1620033-20	As(V)	Soil/Sediment	dry	0.44	J-1	0.01	0.05	mg/kg	B162047	1600979
1620033-20	DMAs	Soil/Sediment	dry	≤ 0.006	U	0.006	0.06	mg/kg	B162047	1600979
1620033-20	MMAs	Soil/Sediment	dry	≤ 0.008	U	0.008	0.06	mg/kg	B162047	1600979
<b>WCTSD001A-0-10</b>										
1620033-34	As(III)	Soil/Sediment	dry	≤ 0.008	J-1, U	0.008	0.06	mg/kg	B162047	1600979
1620033-34	As(V)	Soil/Sediment	dry	1.11	J-1	0.01	0.06	mg/kg	B162047	1600979
1620033-34	DMAs	Soil/Sediment	dry	≤ 0.007	U	0.007	0.07	mg/kg	B162047	1600979
1620033-34	MMAs	Soil/Sediment	dry	0.01	J	0.009	0.08	mg/kg	B162047	1600979
<b>WCTSD001A-40-50</b>										
1620033-35	As(III)	Soil/Sediment	dry	≤ 0.008	J-1, U	0.008	0.06	mg/kg	B162047	1600979
1620033-35	As(V)	Soil/Sediment	dry	0.48	J-1	0.01	0.06	mg/kg	B162047	1600979
1620033-35	DMAs	Soil/Sediment	dry	≤ 0.007	U	0.007	0.07	mg/kg	B162047	1600979
1620033-35	MMAs	Soil/Sediment	dry	≤ 0.009	U	0.009	0.07	mg/kg	B162047	1600979
<b>WCTSD001B-0-10</b>										
1620033-36	As(III)	Soil/Sediment	dry	≤ 0.009	J-1, U	0.009	0.07	mg/kg	B162047	1600979
1620033-36	As(V)	Soil/Sediment	dry	9.14	J-1	0.01	0.07	mg/kg	B162047	1600979
1620033-36	DMAs	Soil/Sediment	dry	0.009	J	0.008	0.08	mg/kg	B162047	1600979
1620033-36	MMAs	Soil/Sediment	dry	0.09	J	0.01	0.09	mg/kg	B162047	1600979
<b>WCTSD001B-40-50</b>										
1620033-37	As(III)	Soil/Sediment	dry	≤ 0.01	J-1, U	0.01	0.10	mg/kg	B162047	1600979
1620033-37	As(V)	Soil/Sediment	dry	1.10	J-1, M	0.02	0.10	mg/kg	B162047	1600979
1620033-37	DMAs	Soil/Sediment	dry	≤ 0.01	U	0.01	0.11	mg/kg	B162047	1600979
1620033-37	MMAs	Soil/Sediment	dry	0.03	J	0.01	0.12	mg/kg	B162047	1600979



## Accuracy & Precision Summary

Batch: B162047  
 Lab Matrix: Soil/Sediment  
 Method: IC-ICP-MS

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B162047-BS1	Laboratory Fortified Blank, As(V) (NC00006)						
	As(V)		50.00	57.34	mg/kg	115% 75-125	
B162047-BS2	Laboratory Fortified Blank, As(III) DMAs MMAs (1609114)						
	As(III)		50.00	55.31	mg/kg	111% 75-125	
	DMAs		52.10	62.23	mg/kg	119% 75-125	
	MMAs		58.65	66.25	mg/kg	113% 75-125	
B162047-DUP1	Duplicate, (1620033-18)						
	As(III)	ND		ND	mg/kg		N/C 25
	As(V)	0.72		0.72	mg/kg		0.07% 25
	DMAs	ND		ND	mg/kg		N/C 25
	MMAs	ND		ND	mg/kg		N/C 25
B162047-MS1	Matrix Spike, As(V) (1620033-18)						
	As(V)	0.72	71.92	82.57	mg/kg	114% 75-125	
B162047-MS2	Matrix Spike, As(III), MMAs, DMAs (1620033-18)						
	As(III)	ND	69.05	ND	mg/kg	NR 75-125	N/C
	DMAs	ND	71.95	84.95	mg/kg	118% 75-125	
	MMAs	ND	80.99	90.49	mg/kg	112% 75-125	
B162047-MSD1	Matrix Spike Duplicate, As(V) (1620033-18)						
	As(V)	0.72	67.52	76.34	mg/kg	112% 75-125	2% 25
B162047-MSD2	Matrix Spike Duplicate, As(III), MMAs, DMAs (1620033-18)						
	As(III)	ND	64.39	ND	mg/kg	NR 75-125	N/C 25
	DMAs	ND	67.10	76.98	mg/kg	115% 75-125	3% 25
	MMAs	ND	75.53	83.08	mg/kg	110% 75-125	2% 25



## Accuracy & Precision Summary

Batch: B162047  
 Lab Matrix: Soil/Sediment  
 Method: IC-ICP-MS

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B162047-DUP2	<b>Duplicate, (1620033-37)</b>						
	As(III)	ND		ND	mg/kg		N/C 25
	As(V)	1.10		0.82	mg/kg		30% 25
	DMAs	ND		ND	mg/kg		N/C 25
	MMAAs	0.03		ND	mg/kg		N/C 25
B162047-MS3	<b>Matrix Spike, As(V) (1620033-37)</b>						
	As(V)	1.10	104.3	119.3	mg/kg	113% 75-125	
B162047-MS4	<b>Matrix Spike, As(III) DMAs MMAAs (1620033-37)</b>						
	As(III)	ND	95.92	ND	mg/kg	NR 75-125	N/C
	DMAs	ND	99.95	113.9	mg/kg	114% 75-125	
	MMAAs	0.03	112.5	124.4	mg/kg	111% 75-125	
B162047-MSD3	<b>Matrix Spike Duplicate, As(V) (1620033-37)</b>						
	As(V)	1.10	99.50	106.4	mg/kg	106% 75-125	7% 25
B162047-MSD4	<b>Matrix Spike Duplicate, As(III) DMAs MMAAs (1620033-37)</b>						
	As(III)	ND	95.36	ND	mg/kg	NR 75-125	N/C 25
	DMAs	ND	99.37	113.7	mg/kg	114% 75-125	0.4% 25
	MMAAs	0.03	111.9	121.6	mg/kg	109% 75-125	2% 25



## Method Blanks & Reporting Limits

**Batch:** B162047  
**Matrix:** Soil/Sediment  
**Method:** IC-ICP-MS  
**Analyte:** As(III)

Sample	Result	Units	
B162047-BLK1	0.00	mg/kg wet	
B162047-BLK2	0.00	mg/kg wet	
B162047-BLK3	0.00	mg/kg wet	
B162047-BLK4	0.00	mg/kg wet	
<b>Average:</b>	<b>0.00</b>		<b>MDL: 0.006</b>
<b>Limit:</b>	<b>0.05</b>		<b>MRL: 0.05</b>

**Analyte:** As(V)

Sample	Result	Units	
B162047-BLK1	0.002	mg/kg wet	
B162047-BLK2	0.0009	mg/kg wet	
B162047-BLK3	0.002	mg/kg wet	
B162047-BLK4	0.002	mg/kg wet	
<b>Average:</b>	<b>0.00</b>		<b>MDL: 0.009</b>
<b>Limit:</b>	<b>0.05</b>		<b>MRL: 0.05</b>

**Analyte:** DMAs

Sample	Result	Units	
B162047-BLK1	0.00	mg/kg wet	
B162047-BLK2	0.00	mg/kg wet	
B162047-BLK3	0.006	mg/kg wet	
B162047-BLK4	0.0009	mg/kg wet	
<b>Average:</b>	<b>0.00</b>		<b>MDL: 0.005</b>
<b>Limit:</b>	<b>0.05</b>		<b>MRL: 0.05</b>





## Method Blanks & Reporting Limits

**Analyte:** MMAs

<b>Sample</b>	<b>Result</b>	<b>Units</b>	
B162047-BLK1	0.00	mg/kg wet	
B162047-BLK2	0.00	mg/kg wet	
B162047-BLK3	0.004	mg/kg wet	
B162047-BLK4	0.00	mg/kg wet	
<b>Average:</b>	0.00		<b>MDL:</b> 0.007
<b>Limit:</b>	0.06		<b>MRL:</b> 0.06



## Sample Containers

<b>Lab ID:</b> 1620033-01		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/09/2016	
<b>Sample:</b> MWS00SR-10.5-11.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/11/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz	not provided	none	none		Cooler
B	EXTRA_VOL No analysis	4oz Glass (Full)	N/a	none	none		Cooler
C	EXTRA_VOL No analysis	4oz glass jar (over half full)	n/a	none	none		Cooler
D	EXTRA_VOL	4oz jar	n/a	none	none		Cooler

**Comments:** Archive sample

<b>Lab ID:</b> 1620033-02		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/09/2016	
<b>Sample:</b> MWS008-11.5-12.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/11/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz	not provided	none	none		Cooler
B	EXTRA_VOL No analysis	4oz glass jar (FULL)	n/a	none	none		Cooler
C	EXTRA_VOL	4oz jar	n/a	none	none		Cooler

**Comments:** Archive

<b>Lab ID:</b> 1620033-03		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/10/2016	
<b>Sample:</b> MWS011-13-14		<b>Sample Type:</b> Sample				<b>Received:</b> 05/11/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz	not provided	none	none		Cooler
B	EXTRA_VOL No analysis	4oz glass jar (FULL)	N/A	none	none		Cooler
C	EXTRA_VOL	4oz jar	N/A	none	none		Cooler

**Comments:** Archive



## Sample Containers

**Lab ID:** 1620033-04

**Sample:** MWS013-12.5-13.5

**Report Matrix:** Soil/Sediment

**Sample Type:** Sample

**Collected:** 05/10/2016

**Received:** 05/11/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none	none		Cooler
B	Jar HDPE - Sp	4oz jar	not provided	none	none		Cooler
C	EXTRA_VOL No analysis	4oz glass (FULL)	N/A	none	none		Cooler
D	EXTRA_VOL No analysis	8oz HDPE (full)	N/A	none	none		Cooler
E	EXTRA_VOL No analysis	16oz Glass (FULL)	N/A	none	none		Cooler
F	EXTRA_VOL No analysis	4oz glass (over half full)	N/A	none	none		Cooler
G	EXTRA_VOL	4oz HDPE	n/A	none	none		Cooler

**Comments:** Archive

**Lab ID:** 1620033-05

**Sample:** MWS010-12-13

**Report Matrix:** Soil/Sediment

**Sample Type:** Sample

**Collected:** 05/10/2016

**Received:** 05/11/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none	none		Cooler
B	Jar HDPE - Sp	4oz jar	not provided	none	none		Cooler



## Sample Containers

<b>Lab ID:</b> 1620033-06		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/11/2016	
<b>Sample:</b> MWS007-9-10		<b>Sample Type:</b> Sample				<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 3
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 3
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 3
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 3
E	EXTRA_VOL	16oz glass jar (full)	not provided	none			Cooler 3
F	EXTRA_VOL	4oz glass jar (over half full)	not provided	none			Cooler 3
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 3

**Comments:** TOC

<b>Lab ID:</b> 1620033-07		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/11/2016	
<b>Sample:</b> MWS009-11-12		<b>Sample Type:</b> Sample				<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 2
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 2
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 2
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 2
E	EXTRA_VOL	16oz glass jar (full)	not provided	none			Cooler 2
F	EXTRA_VOL	4oz glass jar (over half full)	not provided	none			Cooler 2
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 2

**Comments:** TOC



## Sample Containers

<b>Lab ID:</b> 1620033-08		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/12/2016	
<b>Sample:</b> MWS012-11.5-12.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 3
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 3
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 3
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 3
E	EXTRA_VOL	16oz glass jar (full)	not provided	none			Cooler 3
F	EXTRA_VOL	4oz glass jar (over half full)	not provided	none			Cooler 3
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 3

**Comments:** TOC

<b>Lab ID:</b> 1620033-09		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/12/2016	
<b>Sample:</b> TBS006-13-14		<b>Sample Type:</b> Sample				<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 3
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 3
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 3

**Comments:** TOC



## Sample Containers

<b>Lab ID:</b> 1620033-10		<b>Report Matrix:</b> Soil/Sediment			<b>Collected:</b> 05/12/2016	
<b>Sample:</b> TBS004-12-13		<b>Sample Type:</b> Sample			<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none		Cooler 3
D	EXTRA_VOL	4 oz jar	not provided	none		Cooler 3
G	EXTRA_VOL	4oz glass jar (full)	not provided	none		Cooler 3

**Comments:** TOC

<b>Lab ID:</b> 1620033-11		<b>Report Matrix:</b> Soil/Sediment			<b>Collected:</b> 05/13/2016	
<b>Sample:</b> TBS008-13-14		<b>Sample Type:</b> Sample			<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none		Cooler 2
D	EXTRA_VOL	4 oz jar	not provided	none		Cooler 2
G	EXTRA_VOL	4oz glass jar (full)	not provided	none		Cooler 2

**Comments:** TOC

<b>Lab ID:</b> 1620033-12		<b>Report Matrix:</b> Soil/Sediment			<b>Collected:</b> 05/13/2016	
<b>Sample:</b> TBS009-7.4-8.4		<b>Sample Type:</b> Sample			<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none		Cooler 2
B	EXTRA_VOL	4oz glass jar (FULL)	not provided	none		Cooler 2
C	EXTRA_VOL	4oz Glass (Full)	not provided	none		Cooler 2
D	EXTRA_VOL	4 oz jar	not provided	none		Cooler 2

**Comments:** ARCHIVE



## Sample Containers

<b>Lab ID:</b> 1620033-13		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/13/2016	
<b>Sample:</b> TBS009-8.8-9.8		<b>Sample Type:</b> Sample				<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 2
B	EXTRA_VOL	4oz glass jar (FULL)	not provided	none			Cooler 2
C	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 2
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 2

**Comments:** ARCHIVE

<b>Lab ID:</b> 1620033-14		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/13/2016	
<b>Sample:</b> TBS009-12-13		<b>Sample Type:</b> Sample				<b>Received:</b> 05/13/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 2
B	EXTRA_VOL	4oz glass jar (FULL)	not provided	none			Cooler 2
C	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 2
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 2

**Comments:** ARCHIVE

<b>Lab ID:</b> 1620033-15		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/16/2016	
<b>Sample:</b> TBS001-11-12		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 4
B	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 4
C	EXTRA_VOL	4 oz jar	not provided	none			Cooler 4

**Comments:** ARCHIVE



## Sample Containers

**Lab ID:** 1620033-16

**Sample:** TBS002-12.5-13.5

**Report Matrix:** Soil/Sediment

**Sample Type:** Sample

**Collected:** 05/16/2016

**Received:** 05/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 4
B	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 4
C	EXTRA_VOL	4 oz jar	not provided	none			Cooler 4

**Comments:** ARCHIVE

**Lab ID:** 1620033-17

**Sample:** TBS003-14-15

**Report Matrix:** Soil/Sediment

**Sample Type:** Sample

**Collected:** 05/17/2016

**Received:** 05/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 4
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 4
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 4
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 4
E	EXTRA_VOL	16oz glass jar (full)	not provided	none			Cooler 4
F	EXTRA_VOL	4oz glass jar (over half full)	not provided	none			Cooler 4
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 4

**Comments:** TOC





## Sample Containers

<b>Lab ID:</b> 1620033-18		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TBS005-17-18		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 4
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 4
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 4
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 4
E	EXTRA_VOL	16oz glass jar (full)	not provided	none			Cooler 4
F	EXTRA_VOL	4oz glass jar (over half full)	not provided	none			Cooler 4
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 4

**Comments:** TOC

<b>Lab ID:</b> 1620033-19		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TPS002-0.5-1.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 4
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 4
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 4
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 4
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 4
H	EXTRA_VOL	4oz glass jar (half full or more)	not provided	none			Cooler 4

**Comments:** Dioxins



## Sample Containers

<b>Lab ID:</b> 1620033-20		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TBS007-16.5-17.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 5
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 5
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 5
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 5
E	EXTRA_VOL	16oz glass jar (full)	not provided	none			Cooler 5
F	EXTRA_VOL	4oz glass jar (over half full)	not provided	none			Cooler 5
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 5

**Comments:** TOC

<b>Lab ID:</b> 1620033-21		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TPS001-0.5-1.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 5
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 5
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 5
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 5
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 5
H	EXTRA_VOL	4oz glass jar (half full or more)	not provided	none			Cooler 5

**Comments:** Dioxins



## Sample Containers

<b>Lab ID:</b> 1620033-22		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TPS001F-1.5-2.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 5
B	Jar HDPE - Sp	4oz jar	not provided	none			Cooler 5
C	EXTRA_VOL	8oz HDPE (full)	not provided	none			Cooler 5
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 5
G	EXTRA_VOL	4oz glass jar (full)	not provided	none			Cooler 5
H	EXTRA_VOL	4oz glass jar (half full or more)	not provided	none			Cooler 5

**Comments:** Dioxins

<b>Lab ID:</b> 1620033-23		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/17/2016	
<b>Sample:</b> TPS002-10.5-12.5		<b>Sample Type:</b> Sample				<b>Received:</b> 05/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 4
B	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 4
C	EXTRA_VOL	4 oz jar	not provided	none			Cooler 4

**Comments:** ARCHIVE

<b>Lab ID:</b> 1620033-24		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> TPS001TB-12-13		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
C	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL			none			Cooler 6

**Comments:** TOC/pentachlorophenol/pH



## Sample Containers

**Lab ID:** 1620033-25  
**Sample:** WCTSD004B-0-10

**Report Matrix:** Soil/Sediment  
**Sample Type:** Sample

**Collected:** 05/18/2016  
**Received:** 05/20/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide

**Lab ID:** 1620033-26  
**Sample:** WCTSD003A-0-10

**Report Matrix:** Soil/Sediment  
**Sample Type:** Sample

**Collected:** 05/18/2016  
**Received:** 05/20/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8oz Jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide



## Sample Containers

<b>Lab ID:</b> 1620033-27		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD003A-40-50		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8 oz Jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide

<b>Lab ID:</b> 1620033-28		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD003B-0-10		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8oz Jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide



## Sample Containers

<b>Lab ID:</b> 1620033-29		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD003B-40-50		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8oz jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide

<b>Lab ID:</b> 1620033-30		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD002A-0-10		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8oz jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide



## Sample Containers

<b>Lab ID:</b> 1620033-31		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD002A-36-46		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8oz jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide

<b>Lab ID:</b> 1620033-32		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD002B-0-10		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
B	EXTRA_VOL	8oz jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide



## Sample Containers

**Lab ID:** 1620033-33  
**Sample:** WCTSD002B-40-50

**Report Matrix:** Soil/Sediment  
**Sample Type:** Sample

**Collected:** 05/18/2016  
**Received:** 05/20/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 6
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 6
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 6
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 6

**Comments:** Sulfide

**Lab ID:** 1620033-34  
**Sample:** WCTSD001A-0-10

**Report Matrix:** Soil/Sediment  
**Sample Type:** Sample

**Collected:** 05/18/2016  
**Received:** 05/20/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
B	Jar HDPE - Sp	8oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide





## Sample Containers

<b>Lab ID:</b> 1620033-35		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD001A-40-50		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
B	Jar HDPE - Sp	8oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide

<b>Lab ID:</b> 1620033-36		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD001B-0-10		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
B	Jar HDPE - Sp	8oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide



## Sample Containers

<b>Lab ID:</b> 1620033-37		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD001B-40-50		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
B	Jar HDPE - Sp	8oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide

<b>Lab ID:</b> 1620033-38		<b>Report Matrix:</b> Soil/Sediment				<b>Collected:</b> 05/18/2016	
<b>Sample:</b> WCTSD004A-40-50		<b>Sample Type:</b> Sample				<b>Received:</b> 05/20/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide



## Sample Containers

**Lab ID:** 1620033-39  
**Sample:** WCTSD004B-40-50

**Report Matrix:** Soil/Sediment  
**Sample Type:** Sample

**Collected:** 05/18/2016  
**Received:** 05/20/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide

**Lab ID:** 1620033-40  
**Sample:** WCTSD004A-0-10

**Report Matrix:** Soil/Sediment  
**Sample Type:** Sample

**Collected:** 05/18/2016  
**Received:** 05/20/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4oz jar	not provided	none			Cooler 7
D	EXTRA_VOL	4 oz jar	not provided	none			Cooler 7
F	EXTRA_VOL	4oz Glass (Full)	not provided	none			Cooler 7
H	EXTRA_VOL	4oz glass jar (at least half full)	not provided	none			Cooler 7

**Comments:** Sulfide



## Shipping Containers

### Cooler

**Received:** May 11, 2016 14:30  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 5.1 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#4

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 2

**Received:** May 13, 2016 17:05  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 5.8 °C

**Description:** Cooler 2  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#2

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 3

**Received:** May 13, 2016 17:05  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 4.0 °C

**Description:** Cooler 3  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#2

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 4

**Received:** May 18, 2016 10:45  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 4.1 °C

**Description:** Cooler 4  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#2

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 5

**Received:** May 18, 2016 10:45  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 2.1 °C

**Description:** Cooler 5  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#2

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 6

**Received:** May 20, 2016 9:30  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 7.5 °C

**Description:** Cooler 6  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#4

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 7

**Received:** May 20, 2016 9:30  
**Tracking No:** Courier via Courier  
**Coolant Type:** Blue Ice  
**Temperature:** 6.5 °C

**Description:** Cooler 7  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#4

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

# Chain of Custody Record

Field Sampler(s): GSI BAL Report 1620033B

<b>Client Contact</b>		<b>For Lab Use Only:</b>				<b>Laboratory</b>										<b>Lab PM</b>			
Project Name: Parcel 15 - POT		SDG: _____				Brooks Applied Labs					TestAmerica					Brooks- Ben Wozniak- 206-753-6158			
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No				<b>Analysis Requested</b>											TestAmerica - Christabel Escarez- 253.248.4975		
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No				Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans		Sulfide	Grain Size
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																	
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																	
Analysis Turnaround Time:																			
<input checked="" type="checkbox"/> 21 days (STD)																			
<input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days *																			
<input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *																			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***	Sample Specific Notes:	
MNS005R-10.5-11.5	5/9/16	1445	G	S	1	X	X	X	X				X	X	X	X					
MWS008-11.5-12.5	↓	1650	G	S	1	X	X	X	X				X	X							
MNS011-13-14	5/10/16	925	G	S	1	X	X	X	X				X	X							
MNS013-12.5-13.5	↓	1135	G	S	1	X	X	X	X	X	X	X	X	X			X	X			
MWS010-12-13	↓	1505	G	S	1	X	X	X	X	X	X	X	X	X			X	X			

<b>Possible Hazard Identification:</b>					<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>														
Are samples hazardous? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input checked="" type="checkbox"/> Archive for 1 yr + contact GSI														
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic																			
If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.																			

Received by: <u>Martha McDonald</u>	Date/Time: <u>5/11/16 10:00</u>	Relinquished by: <u>Peter Pellegrino - GSI</u>	Date/Time: <u>5/11/16 1000</u>
Received by: <u>[Signature]</u>	Date/Time: <u>5/11/16 14:30</u>	Relinquished by: _____	Date/Time: _____
Received in Laboratory by: _____	Date/Time: _____	Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input checked="" type="checkbox"/> Other	Tracking #: _____

**Special Instructions/QC Requirements**

\* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.

\*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.

\*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.

Please contact Cindy Ryals at 971-200-8531 with any questions.

*See SPP tables A-3+17-5*



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 Portland, Oregon 97204  
 503.239.8700

Field Sampler(s): BAL Report 1620033B

# Chain of Custody Record

<b>Client Contact</b>		<b>For Lab Use Only:</b>		<b>Laboratory</b>										<b>Lab PM</b>			
Project Name: Parcel 15 - POT		SDG: _____		Brooks Applied Labs					TestAmerica					Brooks- Ben Wozniak- 206-753-6158			
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Analysis Requested</b>													
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No		Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C															
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____															
Analysis Turnaround Time:																	
<input type="checkbox"/> 21 days (STD) <input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input checked="" type="checkbox"/> 3 day * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *		<input type="checkbox"/> 21 days (STD) <input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input checked="" type="checkbox"/> 3 day * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *															

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***	Sample Specific Notes:
MWS007-9-10	5/11/16	940	G	S	1	X	X	X	X	X	X	X	X	X						
MWS009-11-12	↓	1435	↓	↓	↓	X	X	X	X	X	X	X	X	X				X	X	
MWS012-11.5-12.5	5/12/16	1000	↓	↓	↓	X	X	X	X	X	X	X	X	X				X	X	
TBS006-13-14	↓	1325	↓	↓	↓	X	X	X	X				X	X						
TBS004-12-13	↓	1640	↓	↓	↓	X	X	X	X				X	X						
TBS008-13-14	5/13/16	915	G	S	1	X	X	X	X				X	X						
TBS009-7.4-8.4	↓	1215	↓	↓	↓	X	X	X	X				X	X	X					X
TBS009-8.8-9.8	5/13/16	1220	G	S	1	X	X	X	X				X	X	X					X
TBS009-12-13	↓	1225	↓	↓	↓	X	X	X	X				X	X	X					X

**Possible Hazard Identification:**  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client    Disposal by Lab    Archive for 1 yr + contact GSI

Received by: *Mark McDermott* Date/Time: 5/13/16 1525  
 Relinquished by: *Renee Fowler, GSI* Date/Time: 5/13/16 1525

Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received in Laboratory by: *Jan Ziballin* Date/Time: 5/13/16 17:05  
 Shipped Via:  UPS  Fed-Ex  USPS  Other   Tracking #: \_\_\_\_\_

**Special Instructions/QC Requirements**  
 \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.  
 \*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.  
 \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

*see SAP tables BWA-BWA R5  
A-3 + A-4*



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 Portland, Oregon 97204  
 503.239.8700

Field Sampler(s): GSI BAL Report 1620033B

# Chain of Custody Record

<b>Client Contact</b>		<b>For Lab Use Only:</b>					<b>Laboratory</b>										<b>Lab PM</b>																				
Project Name: Parcel 15 - POT		SDG: _____					Brooks Applied Labs					TestAmerica					Brooks - Ben Wozniak - 206-753-6158																				
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No					Analysis Requested											TestAmerica - Christabel Escarez - 253.248.4975																			
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No					Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans		Sulfide	Grain Size	Archive Only (Frozen)***	Sample Specific Notes:															
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																																			
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																																			
Analysis Turnaround Time:																																					
<input type="checkbox"/> 21 days (STD) <input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *		see contract																																			
<b>Sample Identification</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=Comp, G=Grab)</b>	<b>Matrix</b>	<b>Total # of Cont.</b>																															
TBS001 - 10.5-11.5 <sup>RF</sup> 11-12		5/16/16	1115	G	S	1												X					X	X	X				X	X							
TBS002 - 12.5 - 13.5		↓	1400	↓	↓	↓												X					X	X	X				X	X							
TBS003 - 14 - 15		5/17/16	925	↓	↓	↓												X					X	X	X	X	X	X	X	X			X	X			
<del>TBS003 - 14 - 15</del>		<del>5/17/16</del>	<del>1000</del>																																		
TBS005 - 17-18		5/17/16	1155	G	S	2	X	X	X	X	X	X	X	X	X			X	X																		
TPS002 - 0.5 - 1.5		↓	1410	↓	↓	↓	X	X	X	X	X	X	X	X	X	X	X	X	X																		
TBS007 - 16.5 - 17.5		↓	1520	↓	↓	↓	X	X	X	X	X	X	X	X	X			X	X																		
TPS001 - 0.5 - 1.5		↓	1720	↓	↓	↓	X	X	X	X	X	X	X	X	X	X	X	X	X																		
TPS001F - 1.5 - 2.5		↓	1730	↓	↓	↓	X	X	X	X	X	X	X	X	X	X	X	X	X																		
TPS002 - 10.5 - 12.5		5/17/16	1530	G	S	1	X	X	X	X				X	X	X																					

RF

no sulfide + grain size

<b>Possible Hazard Identification:</b>		<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>	
Are samples hazardous? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.		<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input checked="" type="checkbox"/> Archive for 1 yr + contact GSI Erin Hughes   5/18/16 8:15	
Received by: Chris Busch	Date/Time: 5/18/16 8:15am	Relinquished by: [Signature]	Date/Time: 5/18/16 10:45
Received by: [Signature]	Date/Time: 5/18/16 10:45	Relinquished by: [Signature]	Date/Time: 5/18/16 10:45
Received in Laboratory by:	Date/Time:	Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other	Tracking #:

**Special Instructions/QC Requirements**

\* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.

\*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.

\*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.

Please contact Cindy Ryals at 971-200-8531 with any questions.



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 Portland, Oregon 97204  
 503.239.8700

page 1 of 2

# Chain of Custody Record

Field Sampler(s): GSI BAL Report 1620033B

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>												<b>Lab PM</b>	
Project Name: Parcel 15 - POT	SDG: _____	Brooks Applied Labs						TestAmerica						Brooks- Ben Wozniak- 206-753-6158	
Project # or PO #: 603.002.010	Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Analysis Requested</b>													
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)**
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C														
Report to email: echughes@gsiws.com, cryals@gsiws.com	Therm ID No.: _____ Therm Exp. _____														
Analysis Turnaround Time:	<input type="checkbox"/> 21 days (STD)														
<input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *	<i>see contract</i>														

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)**	Sample Specific Notes:
<del>FB</del> TPS001TB-12-13	5/18/16	9:20		soil	1	X	X	X	X				X	X	X					
WCTSD004B-0-10	5/18/16	10:15		sed	1	X	X	X	X				X	X	X		X			
WCTSD003A-0-10	5/18/16	11:00		sed	1	X	X	X	X				X	X			X			
WCTSD003A-40-50	5/18/16	11:05		sed	1	X	X	X	X				X	X			X			
WCTSD003B-0-10	5/18/16	11:10		sed	1	X	X	X	X				X	X			X			
WCTSD003B-40-50	5/18/16	11:30		sed	1	X	X	X	X				X	X			X			
WCTSD002A-0-10		12:00				X	X	X	X				X	X			X			
WCTSD002A-36-46		12:10				X	X	X	X				X	X			X			
WCTSD002B-0-10		12:20				X	X	X	X				X	X			X			
WCTSD002B-40-50		12:30				X	X	X	X				X	X			X			
WCTSD001A-0-10		12:40				X	X	X	X				X	X			X			
WCTSD001A-40-50		12:45				X	X	X	X				X	X			X			
WCTSD001B-0-10		12:50				X	X	X	X				X	X			X			

**Possible Hazard Identification:**  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client  Disposal by Lab  Archive for 1 yr + contract GSI

Received by: <i>[Signature]</i>	Date/Time: 5/20/16 8:15am	Relinquished by: <i>[Signature]</i> GSI	Date/Time: 5/20/16 8:15
Received by: <i>[Signature]</i>	Date/Time: 5/20/16 9:30	Relinquished by: <i>[Signature]</i>	Date/Time: 5/20/16 9:56
Received in Laboratory by: <i>[Signature]</i>	Date/Time: 5/20/16 9:30	Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input checked="" type="checkbox"/> Other	Tracking #:

**Special Instructions/QC Requirements**  
 \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.  
 \*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.  
 \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.





55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

page 2 of 2

# Chain of Custody Record

Field Sampler(s): GSI BAL Report 1620033B

Client Contact		For Lab Use Only:					Laboratory											Lab PM		
Project Name: Parcel 15 - POT		SDG: _____					Brooks Applied Labs					TestAmerica						Brooks- Ben Wozniak- 206-753-6158		
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No					Analysis Requested													
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No					Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																		
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																		TestAmerica - Christabel Escarez- 253.248.4975
Analysis Turnaround Time: <input type="checkbox"/> 21 days (STD)																				
<input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *																				Sample Specific Notes:
See Contract																				
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***
WCTSD001B-40-50		5/18/16	1255	G	sed	1	X	X	X	X				X	X			X		
NCTSD004A-40-50		↓	1340	↓	↓	↓	X	X	X	X				X	X	X		X		
NCTSD004B-40-50		↓	1345	↓	↓	↓	X	X	X	X				X	X	X		X		
NCTSD004A-0-10		↓	1350	↓	↓	↓	X	X	X	X				X	X	X		X		

**Possible Hazard Identification:**  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client  Disposal by Lab  Archive for 1yr + contact GSI

Received by: <i>Chris Hughes</i>	Date/Time: 5/20/16 8:15am	Relinquished by: <i>Ben Wozniak GSI</i>	Date/Time: 5/20/16 8:15
Received by: _____	Date/Time: _____	Relinquished by: <i>Chris Hughes</i>	Date/Time: 5/20/16 9:56am
Received in Laboratory by: <i>[Signature]</i>	Date/Time: 5/20/16 9:30	Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other	Tracking #: _____

**Special Instructions/QC Requirements**  
 \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.  
 \*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.  
 \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59527-1

Client Project/Site: Parcel 15 RI - POT  
Revision: 1

For:

GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/10/2016 4:35:32 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59527-1

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**Job ID: 580-59527-1**

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**Laboratory: TestAmerica Seattle**

## Narrative

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**Job Narrative**  
**580-59527-1**

### Comments

No additional comments.

### Receipt

The samples were received on 5/13/2016 8:00 AM; the samples arrived in good condition, properly preserved, and on ice. The temperature of the cooler at receipt was 2.6° C.

### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### General Chemistry

Method(s) SM 5310B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 580-218754. The instrument appears to have missinjected the MSD sample resulting in a low result. The MS met the acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59527-1

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59527-1

**Client Sample ID: TBGW006-E1**

**Lab Sample ID: 580-59527-1**

**Date Collected: 05/12/16 14:45**

**Matrix: Water**

**Date Received: 05/13/16 08:00**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	98		10	1.9	mg/L			06/01/16 16:01	10

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	0.011	J	0.050	0.0070	mg/L			05/17/16 09:41	1
Dissolved Organic Carbon	9.9		1.0	0.19	mg/L			05/31/16 21:29	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59527-1

**Client Sample ID: TBGW004-E1**

**Lab Sample ID: 580-59527-2**

**Date Collected: 05/12/16 18:05**

**Matrix: Water**

**Date Received: 05/13/16 08:00**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	60	F1	10	1.9	mg/L			06/01/16 16:01	10

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			05/17/16 09:41	1
Dissolved Organic Carbon	11		1.0	0.19	mg/L			05/31/16 21:29	1

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# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59527-1

**Client Sample ID: OF#2-E1**  
**Date Collected: 05/12/16 18:20**  
**Date Received: 05/13/16 08:00**

**Lab Sample ID: 580-59527-3**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	8.8		5.0	0.95	mg/L			06/01/16 22:38	5

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			05/17/16 09:41	1
Dissolved Organic Carbon	1.9		1.0	0.19	mg/L			05/31/16 21:29	1

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# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59527-1

**Client Sample ID: OF#3-E1**  
**Date Collected: 05/12/16 18:40**  
**Date Received: 05/13/16 08:00**

**Lab Sample ID: 580-59527-4**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	16		5.0	0.95	mg/L			05/31/16 21:29	5

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			05/17/16 09:41	1
Dissolved Organic Carbon	15		5.0	0.95	mg/L			06/01/16 22:38	5

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# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59527-1

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID: MB 280-325682/4**  
**Matrix: Water**  
**Analysis Batch: 325682**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			05/17/16 09:41	1

**Lab Sample ID: LCS 280-325682/3**  
**Matrix: Water**  
**Analysis Batch: 325682**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.502	0.516		mg/L		103	80 - 119

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-218754/1**  
**Matrix: Water**  
**Analysis Batch: 218754**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/01/16 16:01	1

**Lab Sample ID: LCS 580-218754/2**  
**Matrix: Water**  
**Analysis Batch: 218754**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.40		mg/L		94	85 - 115

**Lab Sample ID: 580-59527-2 MS**  
**Matrix: Water**  
**Analysis Batch: 218754**

**Client Sample ID: TBGW004-E1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60	F1	100	152		mg/L		92	85 - 115

**Lab Sample ID: 580-59527-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 218754**

**Client Sample ID: TBGW004-E1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	60	F1	100	ND	F1	mg/L		0	85 - 115	NC	20

**Lab Sample ID: 580-59527-2 DU**  
**Matrix: Water**  
**Analysis Batch: 218754**

**Client Sample ID: TBGW004-E1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	60	F1	100	60.7		mg/L				0.7	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59527-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: MB 580-218755/1**  
**Matrix: Water**  
**Analysis Batch: 218755**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/01/16 22:38	1

**Lab Sample ID: LCS 580-218755/2**  
**Matrix: Water**  
**Analysis Batch: 218755**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.40		mg/L		94	85 - 115

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-218745/1**  
**Matrix: Water**  
**Analysis Batch: 218745**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			05/31/16 21:29	1

**Lab Sample ID: LCS 580-218745/2**  
**Matrix: Water**  
**Analysis Batch: 218745**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.64		mg/L		96	85 - 115

**Lab Sample ID: MB 580-218757/1**  
**Matrix: Water**  
**Analysis Batch: 218757**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/01/16 22:38	1

**Lab Sample ID: LCS 580-218757/2**  
**Matrix: Water**  
**Analysis Batch: 218757**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.40		mg/L		94	85 - 115

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59527-1

**Client Sample ID: TBGW006-E1**

**Date Collected: 05/12/16 14:45**

**Date Received: 05/13/16 08:00**

**Lab Sample ID: 580-59527-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	325682	05/17/16 09:41	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	218745	05/31/16 21:29	RSB	TAL SEA
Total/NA	Analysis	SM 5310B		10	218754	06/01/16 16:01	RSB	TAL SEA

**Client Sample ID: TBGW004-E1**

**Date Collected: 05/12/16 18:05**

**Date Received: 05/13/16 08:00**

**Lab Sample ID: 580-59527-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	325682	05/17/16 09:41	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	218745	05/31/16 21:29	RSB	TAL SEA
Total/NA	Analysis	SM 5310B		10	218754	06/01/16 16:01	RSB	TAL SEA

**Client Sample ID: OF#2-E1**

**Date Collected: 05/12/16 18:20**

**Date Received: 05/13/16 08:00**

**Lab Sample ID: 580-59527-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	325682	05/17/16 09:41	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	218745	05/31/16 21:29	RSB	TAL SEA
Total/NA	Analysis	SM 5310B		5	218755	06/01/16 22:38	RSB	TAL SEA

**Client Sample ID: OF#3-E1**

**Date Collected: 05/12/16 18:40**

**Date Received: 05/13/16 08:00**

**Lab Sample ID: 580-59527-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	325682	05/17/16 09:41	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		5	218757	06/01/16 22:38	RSB	TAL SEA
Total/NA	Analysis	SM 5310B		5	218574	05/31/16 21:29	RSB	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59527-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59527-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59527-1	TBGW006-E1	Water	05/12/16 14:45	05/13/16 08:00
580-59527-2	TBGW004-E1	Water	05/12/16 18:05	05/13/16 08:00
580-59527-3	OF#2-E1	Water	05/12/16 18:20	05/13/16 08:00
580-59527-4	OF#3-E1	Water	05/12/16 18:40	05/13/16 08:00

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# Chain of Custody Record

Client Contact		For Lab Use Only:		Laboratory		Brooks		Lab PM								
Project Name: Parcel 15 - POT		SDG: _____		TestAmerica		Brooks		Brooks - Ben Wozniak - 206- 753-6158								
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No		Analysis Requested				TestAmerica - Christabel Escarez - 263.248.4975								
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No		Arsenic (total)		Arsenic, Iron, and Manganese (dissolved; field filtered)***		Sample Specific Notes:								
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C		Arsenic (total)		Arsenic, Iron, and Manganese (dissolved; field filtered)										
Report to email: ehughes@gsws.com, cryals@gsws.com		Therm ID No.: _____ Therm Exp. _____		Arsenic (total)		Arsenic, Iron, and Manganese (dissolved; field filtered)										
Analysis Turnaround Time:		See attached		Arsenic (total)		Arsenic, Iron, and Manganese (dissolved; field filtered)										
<input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days *				Arsenic (total)		Arsenic, Iron, and Manganese (dissolved; field filtered)										
<input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *				Arsenic (total)		Arsenic, Iron, and Manganese (dissolved; field filtered)										
Sample Identification		Sample Date	Sample Time	Sample Type (C-comp, G-Grab)	Matrix	Total # of Cont.	Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrite (dissolved; field filtered)**	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***
TRBNC06-E1		5/12/16	1445	G	W	3	X	X	X							
TRBNC04-E1		↓	1805	↓	↓	3	X	X	X							
OF#2-E1		↓	1820	↓	↓	3	X	X	X							
OF#3-E1		↓	1840	↓	↓	3	X	X	X							



580-59527 Chain of Custody

TBA Cooler Cor-2-6 Un-2-8  
Cooler Dsc 1/2 @ Lab  
Wet/Packs Packing Bobby  
C. do W10

**Possible Hazard Identification:**  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

Received by: Brenda L. Steel Date/Time: 5/13/16 0800  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive for

Relinquished by: Jennifer GSI Date/Time: 5/13/16 800  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Shipped Via:  UPS  Fed-Ex  USPS  Other  
 Tracking #: \_\_\_\_\_

**Special Instructions/QC Requirements**  
 \*\*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 \*\*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
 Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

**TestAmerica Seattle**  
 5755 8th Street East  
 Tacoma, WA 98424  
 Phone (253) 922-2310 Fax (253) 922-5047

**Chain of Custody Record**



**TestAmerica**  
 THE LEADER IN ENVIRONMENTAL TESTING

<b>Client Information (Sub Contract Lab)</b>		Lab P/N: Escarez, Christabel C	Carrier Tracking No(s):						
Client Contact: Shipping/Receiving		E-Mail: christabel.escarez@testamericainc.com							
Company: TestAmerica Laboratories, Inc.									
Address: 4955 Yarrow Street, Arvada, CO, 80002									
Phone: 303-736-0100(Tel) 303-431-7171(Fax)									
Email:									
Project Name: Parcel 15 RI - POT									
Site:									
Due Date Requested: 5/29/2016									
TAT Requested (days):									
PO #:									
MO #:									
Project #:									
SSOW#:									
<b>Sample Identification - Client ID (Lab ID)</b>									
Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/Oil)	Field Filtered Sample (Yes or No)	SM4600, SZ, D/FIELD, FLTRD Dissolved Sulfide, field-filtered	Analysis Requested	Carrier Tracking No(s)	COC No: 580-38383.1
TBGW005-E1 (580-59527-1)	5/12/16	14:45 Pacific		Water	X				Page 1 of 1
TBGW004-E1 (580-59527-2)	5/12/16	18:05 Pacific		Water	X				Job #: 580-59527-1
OF#2-E1 (580-59527-3)	5/12/16	18:20 Pacific		Water	X				
OF#3-E1 (580-59527-4)	5/12/16	18:40 Pacific		Water	X				
<p><b>Possible Hazard Identification</b>          Unconfirmed          Deliverable Requested: I, II, III, IV, Other (specify)</p>									
<p><b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>  <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>									
<p><b>Special Instructions/OC Requirements:</b></p>									
<p>Received by: <i>B. Hall</i> Date: 5/13/16 1420 Company: SEATA          Relinquished by: <i>B. Hall</i> Date: 5/13/16 1420 Company: SEATA          Relinquished by: Date: Company:          Relinquished by: Date: Company:          Custody Seal No.:          Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No          Cooler Temperature(s), °C and Other Remarks:          3.94-0.1 IL#S transferred by ST 05/19/16</p>									





Login #: ~~611~~ 82773 Date/Time Received: 05/14/16 0845

Company Name & Sampling Site: TA-South Jersey

Time Zone: • EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER State:

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR)

Temp 0.4 IR# 5  
CF -0.1 Initials JD  
Date: 05/14/16  
FedEx  
670  
6740-5524-0931

Initials JD

N/A Yes No

- 1. Is radioactivity at or below background? BKG CPM: \_\_\_\_\_ CPM Reading: \_\_\_\_\_
- 2a. Is a custody seal present on the cooler?
- 2b. If yes, is the cooler's custody seal intact?
- 2c. Do cooler or samples appear to not have been compromised or tampered with?
- 3a. Were samples received on ice?
- 3b. Is cooler temperature acceptable?
- 3c. Has temperature been recorded?
- 4. Is COC present; filled out in ink and legible; and filled out with all pertinent information?
- 5. Is the Field Sampler's name present on the COC?
- 6a. Are there no discrepancies between the sample IDs and/or collection date and time on the containers and the COC?
- 6b. Are there no discrepancies between the container types and those listed on the COC?
- 7. Are samples received within Holding Time?
- 8. Do sample containers have legible labels?
- 9. Are all sample containers intact (not broken or leaking)?
- 10a. Are appropriate sample containers used?
- 10b. Are sample bottles completely filled? (Perchlorate bottles ≥ 1/3 head space)
- 10c. Is sufficient vol. for all requested analyses, incl. any requested MS/MSDs provided?
- 11. No splitting or compositing of samples required?
- 12. Do all VOA sample vials have no headspace or bubbles >6 mm (1/4") in diameter?
- 13. Were VOA vials labeled as preserved?  HCl  0-6°C  Sodium Thiosulfate  Ascorbic Acid  Other
- 14. Are all samples single phase? (i.e., no multiphasic samples are present.)

Initials JK

Login Checks:

- 15. Was a Priority Form completed for any short holds or quick TATs?
- 16. Were any tests logged for subcontract?
- 17. Were special archiving instructions and login instructions indicated in the Project Notes?

Note Archive Requirements: \_\_\_\_\_

- 18. Were multiple Series logged for this job?

Labeling and Storage Checks:

Initials

- DOE/DoD:  Yes  No Residual chlorine check required:  Yes  No Quarantined:  Yes  No
- 19. Was Sample Preservation verified and found to be correct? (excluding VOA, Oil & Grease, and TOC volumes)
  - 20. Was Residual Chlorine checked and noted on the CUR if present?
  - 21. If subcontract work was requested, was volume placed on sub shelf?
  - 22. Were Terracore/Encores delivered to VOA lab?
  - 23. Did the sample ID on TA label match the client's sample ID on container?
  - 24. Were stickers for special archiving instructions affixed to each box?

Verified by: \_\_\_\_\_

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59527-1

**Login Number: 59527**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59527-1

**Login Number: 59527**  
**List Number: 2**  
**Creator: True, Joshua A**

**List Source: TestAmerica Denver**  
**List Creation: 05/14/16 02:32 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59552-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/3/2016 4:48:09 PM  
Kristine Allen, Manager of Project Management  
(253)248-4970  
[kristine.allen@testamericainc.com](mailto:kristine.allen@testamericainc.com)

Designee for  
Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59552-1

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**Job ID: 580-59552-1**

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**Laboratory: TestAmerica Seattle**

## Narrative

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### Job Narrative 580-59552-1

#### Receipt

The samples were received on 5/13/2016 3:00 PM; the samples arrived in good condition, properly preserved, and on ice. The temperature of the cooler at receipt was 6.5° C. The temperature is considered acceptable since the samples were collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59552-1

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59552-1

**Client Sample ID: TBGW008-E1**

**Lab Sample ID: 580-59552-1**

**Date Collected: 05/13/16 10:45**

**Matrix: Water**

**Date Received: 05/13/16 15:00**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	100		10	1.9	mg/L			05/31/16 21:29	10

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			05/20/16 16:19	1
Dissolved Organic Carbon	100		10	1.9	mg/L			06/01/16 22:38	10



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59552-1

**Client Sample ID: TBGW009-E1**

**Lab Sample ID: 580-59552-2**

**Date Collected: 05/13/16 13:40**

**Matrix: Water**

**Date Received: 05/13/16 15:00**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.12		0.020	0.014	ug/L		05/18/16 12:55	05/24/16 13:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	93		44 - 125				05/18/16 12:55	05/24/16 13:16	1

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.01	HF			SU			05/17/16 12:46	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	3.6		1.0	0.19	mg/L			06/01/16 22:38	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			05/20/16 16:19	1
Dissolved Organic Carbon	3.7		1.0	0.19	mg/L			06/01/16 22:38	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59552-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-217589/1-A**  
**Matrix: Water**  
**Analysis Batch: 217944**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 217589**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.020	0.014	ug/L		05/18/16 12:55	05/24/16 10:39	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	87		44 - 125				05/18/16 12:55	05/24/16 10:39	1

**Lab Sample ID: LCS 580-217589/2-A**  
**Matrix: Water**  
**Analysis Batch: 217944**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 217589**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	8.00	6.73		ug/L		84	30 - 149
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4,6-Tribromophenol	101		44 - 125				

**Lab Sample ID: LCSD 580-217589/3-A**  
**Matrix: Water**  
**Analysis Batch: 217944**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 217589**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	8.00	6.92		ug/L		86	30 - 149	3	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	101		44 - 125						

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID: MB 280-326321/5**  
**Matrix: Water**  
**Analysis Batch: 326321**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			05/20/16 16:19	1

**Lab Sample ID: LCS 280-326321/3**  
**Matrix: Water**  
**Analysis Batch: 326321**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.486	0.533		mg/L		110	80 - 119

**Lab Sample ID: LCSD 280-326321/4**  
**Matrix: Water**  
**Analysis Batch: 326321**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.486	0.544		mg/L		112	80 - 119	2	10

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59552-1

## Method: SM 4500 S2 D - Sulfide, Total (Continued)

Lab Sample ID: 580-59552-2 MS  
Matrix: Water  
Analysis Batch: 326321

Client Sample ID: TBGW009-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND		0.474	0.480		mg/L		101	80 - 119

Lab Sample ID: 580-59552-2 MSD  
Matrix: Water  
Analysis Batch: 326321

Client Sample ID: TBGW009-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND		0.474	0.475		mg/L		100	80 - 119	1	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-218574/1  
Matrix: Water  
Analysis Batch: 218574

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			05/31/16 21:29	1

Lab Sample ID: LCS 580-218574/2  
Matrix: Water  
Analysis Batch: 218574

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.64		mg/L		96	85 - 115

Lab Sample ID: MB 580-218755/1  
Matrix: Water  
Analysis Batch: 218755

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/01/16 22:38	1

Lab Sample ID: LCS 580-218755/2  
Matrix: Water  
Analysis Batch: 218755

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.40		mg/L		94	85 - 115

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

Lab Sample ID: MB 580-218757/1  
Matrix: Water  
Analysis Batch: 218757

Client Sample ID: Method Blank  
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/01/16 22:38	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59552-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

Lab Sample ID: LCS 580-218757/2

Matrix: Water

Analysis Batch: 218757

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.40		mg/L		94	85 - 115

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59552-1

**Client Sample ID: TBGW008-E1**

**Lab Sample ID: 580-59552-1**

**Date Collected: 05/13/16 10:45**

**Matrix: Water**

**Date Received: 05/13/16 15:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	326321	05/20/16 16:19	KAM	TAL DEN
Dissolved	Analysis	SM 5310B		10	218757	06/01/16 22:38	RSB	TAL SEA
Total/NA	Analysis	SM 5310B		10	218574	05/31/16 21:29	RSB	TAL SEA

**Client Sample ID: TBGW009-E1**

**Lab Sample ID: 580-59552-2**

**Date Collected: 05/13/16 13:40**

**Matrix: Water**

**Date Received: 05/13/16 15:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			217589	05/18/16 12:55	ERZ	TAL SEA
Total/NA	Analysis	8270D SIM		1	217944	05/24/16 13:16	D1R	TAL SEA
Total/NA	Analysis	9040B		1	217476	05/17/16 12:46	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	326321	05/20/16 16:19	KAM	TAL DEN
Dissolved	Analysis	SM 5310B		1	218757	06/01/16 22:38	RSB	TAL SEA
Total/NA	Analysis	SM 5310B		1	218755	06/01/16 22:38	RSB	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59552-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9040B		Water	pH
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59552-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59552-1	TBGW008-E1	Water	05/13/16 10:45	05/13/16 15:00
580-59552-2	TBGW009-E1	Water	05/13/16 13:40	05/13/16 15:00

- 1
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- 5
- 6
- 7
- 8
- 9
- 10
- 11

Chain of Custody Record

Field Sampler(s):  
ESI

Client Contact

Project Name: Parcel 15 - POT

Project # or PO #: 603.002.010

Project Manager: Erin Hughes/Cindy Ryals

Phone #: 971-200-8528 and 971-200-8531

Report to email: eehughes@gsiws.com, cryals@gsiws.com

For Lab Use Only:

SDG: \_\_\_\_\_

Custody Seals Intact?  Yes  No

Hand delivered?  Yes  No

Cooler Temp: \_\_\_\_\_ °C

Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

Analysis Turnaround Time:

14 days \*  7 days \*  5 days \*  21 days (STD)

3 day \*  2 days \*  1 day \*

See contract

Sample Identification

TB 008-E1

TB 009-E1

Sample Date

5/11/16

↓

Sample Time

10:45

13:40

Sample Type (C-Comp, G-Grab)

G

G

Matrix of Cont.

W

M

Total # of Cont.

3

5

Total Organic Carbon

X

X

Dissolved Organic Carbon (field filtered)

X

X

Sulfide (dissolved; field filtered)

X

X

Major Cations (dissolved; field filtered)\*

Major Anions, Alkalinity, Nitrate/Nitrite (dissolved; field filtered)\*\*

Arsenic (total)

Arsenic, Iron, and Manganese (dissolved; field filtered)

Pentachlorophenol and pH

X

Arsenic (total)

Sample Specific Notes:

TestAmerica - Escarez - 253.248.4975

Brooks - Ben Wozniak - 206-753-6158

Brooks - Ben Wozniak - 206-753-6158

Brooks - Ben Wozniak - 206-753-6158

Brooks - Ben Wozniak - 206-753-6158

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Brooks - Ben Wozniak - 206-753-6158

Brooks - Ben Wozniak - 206-753-6158

Brooks - Ben Wozniak - 206-753-6158

Received by: *Tom Stankovic*

Date/Time: 5/13/16 1500

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)

Return to Client  Disposal by Lab  Archive for

Relinquished by: *Erin Hughes for MWL*

Date/Time: 5/13/16 1500

Relinquished by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Date/Time: \_\_\_\_\_



TB Cooler R2 Cor 6.5 Unc 6.3  
Cooler Disc 1g Rad/Mk @ Lab  
WetPacks Packing  
clids

Special Instructions/AC Requirements

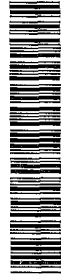
\*Major Cations include calcium, magnesium, potassium, and sodium.

\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total carbonate as CaCO<sub>3</sub>, bicarbonate as CaCO<sub>3</sub>, and hydroxide as CaCO<sub>3</sub>.

\*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L. Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP. Please contact Cindy Ryals at 971-200-8531 with any questions.



Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b> Client Contact: Escarez, Christabel C Shipping/Receiving: christabel.escarez@testamericainc.com Company: TestAmerica Laboratories, Inc.		Sampler: Lab Pkt: Escarez, Christabel C Phone: E-Mail: christabel.escarez@testamericainc.com		Carrier Tracking No(s): COC No: 580-38426-1 Page: Page 1 of 1 Job #: 580-59552-1	
Due Date Requested: 5/29/2016 TAT Requested (days): PO #: 303-736-0100(Tel) 303-431-7171(Fax) WO #: Project #: 58009703 SSOW#:		<b>Analysis Requested</b> Preservation Codes: M - Hexane A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)			
Sample Identification - Client ID (Lab ID) TBGW008-E1 (580-59552-1) TBGW009-E1 (580-59552-2)		Total Number of Containers: 1 Special Instructions/Note:			
Sample Date: 5/13/16 Sample Time: 10:45 Pacific Matrix: Water Sample Type (C=comp, G=grab): Preservation Code:		Field Filtered Sample (Yes or No): Perform MS/MSD (Yes or No): SM4500_S2.D\FIELD_FLTRD Dissolved Sulfide, field-filtered			
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:			
Empty Kit Relinquished by: Tom Blunt Relinquished by: Date/Time: 5/16/16 Relinquished by: Company: TA-Sea Relinquished by: Date/Time: Company: Company Relinquished by: Date/Time: Company: Company		Method of Shipment: Received by: [Signature] Date/Time: 5-17-16 09:00 Company: Company Relinquished by: Date/Time: Company: Company Relinquished by: Date/Time: Company: Company			
Custody Seals Intact: A Yes A No Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 1.5 PHS 0.1 Transferred by RL 5-17-16			



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59552-1

**Login Number: 59552**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59552-1

**Login Number: 59552**

**List Number: 2**

**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**

**List Creation: 05/17/16 11:55 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59632-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/8/2016 4:19:31 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59632-1

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**Job ID: 580-59632-1**

---

**Laboratory: TestAmerica Seattle**

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## Narrative

### Job Narrative 580-59632-1

#### Receipt

The samples were received on 5/17/2016 8:00 AM; the samples arrived in good condition, properly preserved, and on ice. The temperatures of the 2 coolers at receipt time were 0.5° C and 0.8° C.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



## Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59632-1

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59632-1

**Client Sample ID: TBGW001-E1**

**Lab Sample ID: 580-59632-1**

Date Collected: 05/16/16 12:50

Matrix: Water

Date Received: 05/17/16 08:00

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	140		5.0	1.4	ug/L		06/02/16 13:52	06/03/16 18:04	5

**Method: 6020A - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	100		5.0	1.4	ug/L		06/02/16 13:52	06/03/16 17:59	5
Iron	2600		200	29	ug/L		06/02/16 13:52	06/03/16 17:59	5
Manganese	1000		10	1.8	ug/L		06/02/16 13:52	06/03/16 17:59	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	10		10	1.9	mg/L			06/06/16 08:37	10

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			05/20/16 16:19	1
Dissolved Organic Carbon	11		10	1.9	mg/L			06/06/16 16:12	10



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59632-1

**Client Sample ID: TBGW002-E1**

**Lab Sample ID: 580-59632-2**

**Date Collected: 05/16/16 15:20**

**Matrix: Water**

**Date Received: 05/17/16 08:00**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	8.3		1.0	0.19	mg/L			06/06/16 14:42	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			05/20/16 16:19	1
Dissolved Organic Carbon	8.4		1.0	0.19	mg/L			06/08/16 06:48	1



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59632-1

## Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-218649/22-A  
Matrix: Water  
Analysis Batch: 218882

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 218649

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.27	ug/L		06/02/16 13:52	06/03/16 13:18	1
Iron	ND		40	5.8	ug/L		06/02/16 13:52	06/03/16 13:18	1
Manganese	ND		2.0	0.35	ug/L		06/02/16 13:52	06/03/16 13:18	1

Lab Sample ID: LCS 580-218649/23-A  
Matrix: Water  
Analysis Batch: 218882

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 218649

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4000	3940		ug/L		98	80 - 120
Iron	22000	23500		ug/L		107	80 - 120
Manganese	1000	1010		ug/L		101	80 - 120

Lab Sample ID: LCSD 580-218649/24-A  
Matrix: Water  
Analysis Batch: 218882

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total Recoverable  
Prep Batch: 218649

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4000	4020		ug/L		100	80 - 120	2	20
Iron	22000	23800		ug/L		108	80 - 120	1	20
Manganese	1000	1050		ug/L		105	80 - 120	3	20

## Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-326321/5  
Matrix: Water  
Analysis Batch: 326321

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			05/20/16 16:19	1

Lab Sample ID: LCS 280-326321/3  
Matrix: Water  
Analysis Batch: 326321

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.486	0.533		mg/L		110	80 - 119

Lab Sample ID: LCSD 280-326321/4  
Matrix: Water  
Analysis Batch: 326321

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.486	0.544		mg/L		112	80 - 119	2	10

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59632-1

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-218879/1**  
**Matrix: Water**  
**Analysis Batch: 218879**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/06/16 08:37	1

**Lab Sample ID: LCS 580-218879/2**  
**Matrix: Water**  
**Analysis Batch: 218879**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	8.92		mg/L		89	85 - 115

**Lab Sample ID: 580-59632-1 MS**  
**Matrix: Water**  
**Analysis Batch: 218879**

**Client Sample ID: TBGW001-E1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10		100	96.7		mg/L		86	85 - 115

**Lab Sample ID: 580-59632-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 218879**

**Client Sample ID: TBGW001-E1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	10		100	95.1		mg/L		85	85 - 115	2	20

**Lab Sample ID: 580-59632-1 DU**  
**Matrix: Water**  
**Analysis Batch: 218879**

**Client Sample ID: TBGW001-E1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	10		100	10.8		mg/L				4	20

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-219043/1**  
**Matrix: Water**  
**Analysis Batch: 219043**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/06/16 16:12	1

**Lab Sample ID: LCS 580-219043/2**  
**Matrix: Water**  
**Analysis Batch: 219043**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.2		mg/L		102	85 - 115

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59632-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

**Lab Sample ID: 580-59632-1 MS**

**Matrix: Water**

**Analysis Batch: 219043**

**Client Sample ID: TBGW001-E1**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	11		100	118		mg/L		107	85 - 115

**Lab Sample ID: 580-59632-1 MSD**

**Matrix: Water**

**Analysis Batch: 219043**

**Client Sample ID: TBGW001-E1**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	11		100	114		mg/L		103	85 - 115	3	20

**Lab Sample ID: 580-59632-1 DU**

**Matrix: Water**

**Analysis Batch: 219043**

**Client Sample ID: TBGW001-E1**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	11		11.1		mg/L		1	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59632-1

**Client Sample ID: TBGW001-E1**

**Lab Sample ID: 580-59632-1**

**Date Collected: 05/16/16 12:50**

**Matrix: Water**

**Date Received: 05/17/16 08:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			218649	06/02/16 13:52	MKN	TAL SEA
Dissolved	Analysis	6020A		5	218882	06/03/16 17:59	FCW	TAL SEA
Total Recoverable	Prep	3005A			218649	06/02/16 13:52	MKN	TAL SEA
Total Recoverable	Analysis	6020A		5	218882	06/03/16 18:04	FCW	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	326321	05/20/16 16:19	KAM	TAL DEN
Dissolved	Analysis	SM 5310B		10	219043	06/06/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	218879	06/06/16 08:37	Z1T	TAL SEA

**Client Sample ID: TBGW002-E1**

**Lab Sample ID: 580-59632-2**

**Date Collected: 05/16/16 15:20**

**Matrix: Water**

**Date Received: 05/17/16 08:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	326321	05/20/16 16:19	KAM	TAL DEN
Dissolved	Analysis	SM 5310B		1	219043	06/08/16 06:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	218879	06/06/16 14:42	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59632-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59632-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59632-1	TBGW001-E1	Water	05/16/16 12:50	05/17/16 08:00
580-59632-2	TBGW002-E1	Water	05/16/16 15:20	05/17/16 08:00

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55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

# Chain of Custody Record

Loc: 580  
59632

Field Sampler(s):  
GSA

## Client Contact

Project Name: Parcel 15 - POT  
Project # or PO #: 603.002.010  
Project Manager: Erin Hughes/Cindy Ryals  
Phone #: 971-200-8528 and 971-200-8531  
Report to email: schughes@gstlws.com, cryals@gstlws.com

## For Lab Use Only:

SDG: \_\_\_\_\_  
Custody Seals Intact?  Yes  No  
Hand delivered?  Yes  No  
Cooler Temp: \_\_\_\_\_ °C  
Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

## Laboratory

TestAmerica  
Analysis Requested

## Brooks

Brooks - Ben  
Wozniak - 206-753-6158

## Lab PM

Analysis Turnaround Time:  21 days (STD)  
 14 days \*  7 days \*  5 days \*  
 3 day \*  2 days \*  1 day \*  
*see contact*

## Sample Identification

Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	Total # of Cont.
TB6W001-E1	5:11	G	W	5
TB6W002-E1	12:20	G	W	3

Analysis Requested	Result
Total Organic Carbon	X
Dissolved Organic Carbon (field filtered)	X
Sulfide (dissolved; field filtered)	X
Major Cations (dissolved; field filtered)*	
Major Anions, Alkalinity, Nitrate/Nitrite (dissolved; field filtered)**	
Arsenic (total)	X
Arsenic, Iron, and Manganese (dissolved; field filtered)	X
Pentachlorophenol and pH	
Arsenic (total)	
Arsenic, Iron, and Manganese (dissolved; field filtered)***	
Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	
Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	

Sample Specific Notes:  
TestAmerica - Christabel Escarez 253.248.4975



580-59632 Chain of Custody

TB Cooler Discs @ Lab  
Cooler Discs @ Lab  
WetPacks Packing  
OT 8:00  
US 10  
TB Cooler Discs @ Lab  
Cooler Discs @ Lab  
WetPacks Packing  
Clide  
US 10

## Possible Hazard Identification:

Are samples hazardous?  Yes  No  
If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request; samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive for

Received by: *Brook & Brook* Date/Time: 5:17:16 0800  
Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Relinquished by: *Rivest* Date/Time: 5:11 8:00  
Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Shipped Via:  UPS  FedEx  USPS  Other Tracking #: \_\_\_\_\_

## Special Instructions/QC Requirements

\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total carbonate as CaCO<sub>3</sub>, bicarbonate as CaCO<sub>3</sub>, and hydroxide as CaCO<sub>3</sub>.  
\*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
Brooks to follow special amoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
Please contact Cindy Ryals at 971-200-8531 with any questions.




**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b> Client Contact: Escarez, Christabel C Shipping/Receiving: christabel.escarez@testamericainc.com Company: TestAmerica Laboratories, Inc.		Lab Piv: Escarez, Christabel C E-Mail: christabel.escarez@testamericainc.com		Carrier Tracking No(s): COC No: 580-38489.1 Page: Page 1 of 1 Job #: 580-59632-1	
Address: 4955 Yarrow Street, City: Arvada State, Zip: CO, 80002 Phone: 303-736-0100 (Tel) 303-431-7171 (Fax) Email:		Due Date Requested: 6/2/2016 TAT Requested (days): PO #: WO #: Project #: 58009703 SOW#:		<b>Analysis Requested</b> SM4500_S2_D/FIELD_FLTRD Dissolved Sulfide, field-filtered Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Total Number of Containers: 1	
<b>Sample Identification - Client ID (Lab ID)</b> TBGW001-E1 (580-59632-1) TBGW002-E1 (580-59632-2)		Sample Date 5/16/16 5/16/16	Sample Time 12:50 Pacific 15:20 Pacific	Sample Type (C=Comp, G=grab) Water Water	Matrix (W=water, S=solid, O=wastewater, I=TISSUE, A=AI) Water Water
<b>Possible Hazard Identification</b> Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/Note: PM: Escarez, Christabel C Company: GST Water Solutions, Inc	
<b>Empy Kit Relinquished by:</b> Relinquished by: B. S. Bell Relinquished by: Relinquished by:		Date: 5.18.16 1709 Date/Time: 5/19/16 0915 Date/Time: Date/Time:		Method of Shipment: Special Instructions/QC Requirements:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 5.01-0.1 ILTS transferred by SS		Company: Company: Company:	



<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab P/N:	Carrier Tracking No(s):	COC No:																														
Client Contact: Shipping/Receiving		Phone:	Escarez, Christabel C		580-38489-1																														
Company: TestAmerica Laboratories, Inc.			E-Mail: christabel.escarez@testamericainc.com		Page 1 of 1																														
Address: 4955 Yarrow Street, City: Arvada State, Zip: CO, 80002		Due Date Requested: 6/2/2016	Job #: 580-59632-1																																
Phone: 303-736-0100(Tel) 303-431-7171(Fax)		TAT Requested (days):	Preservation Codes: A - HCL M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - DI Water W - pH +5 X - EDTA L - EDTA Z - other (specify) Other:																																
Project Name: Parcel 15 RI		PO #:	<b>Analysis Requested</b>																																
Site: SSOW#:		W/O #:																																	
Sample Identification - Client ID (Lab ID)		Project #: 58009703	<table border="1"> <tr> <th>Sample ID</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=Comp, G=grab)</th> <th>Matrix (W=water, S=soil, O=wast/wat, BT=Tissue, A=Air)</th> <th>Field Filtered Sample (Yes or No)</th> <th>Performance (Yes or No)</th> <th>SM4600_S2_D/F/ELD_FL/TRD Dissolved Sulfide, field-filtered</th> <th>Total Number of Containers</th> <th>Special Instructions/Note:</th> </tr> <tr> <td>TBGW001-E1 (580-59632-1)</td> <td>5/16/16</td> <td>12:50 Pacific</td> <td>Water</td> <td>Water</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TBGW002-E1 (580-59632-2)</td> <td>5/16/16</td> <td>15:20 Pacific</td> <td>Water</td> <td>Water</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>			Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=soil, O=wast/wat, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Performance (Yes or No)	SM4600_S2_D/F/ELD_FL/TRD Dissolved Sulfide, field-filtered	Total Number of Containers	Special Instructions/Note:	TBGW001-E1 (580-59632-1)	5/16/16	12:50 Pacific	Water	Water	X					TBGW002-E1 (580-59632-2)	5/16/16	15:20 Pacific	Water	Water	X				
Sample ID	Sample Date	Sample Time				Sample Type (C=Comp, G=grab)	Matrix (W=water, S=soil, O=wast/wat, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Performance (Yes or No)	SM4600_S2_D/F/ELD_FL/TRD Dissolved Sulfide, field-filtered	Total Number of Containers	Special Instructions/Note:																							
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TBGW002-E1 (580-59632-2)	5/16/16	15:20 Pacific	Water	Water	X																														
		SSOW#:	 580-59632 Login PM: Escarez, Christabel C Company: GSI Water Solutions, Inc																																
<b>Possible Hazard Identification</b>		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months <b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> Special Instructions/QC Requirements:																																	
<b>Unconfirmed</b>		Method of Shipment:																																	
Deliverable Requested: I, II, III, IV, Other (specify)		Time:																																	
Empty Kit Relinquished by:		Date:	Received by: _____																																
Relinquished by: <i>B. Seibel</i>		5-18-16 1709	SEA TA	Date/Time: 05/19/16	OALS																														
Relinquished by:		Date/Time:	Company:	Date/Time:	Company:																														
Relinquished by:		Date/Time:	Company:	Date/Time:	Company:																														
Custody Seals Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks: 5.0 F - 0.1 D # S transferred by SS																																	



# Chain of Custody Record

<b>Client Information (Sub Contract Lab)</b> Client Contact: Shipping/Receiving Company: TestAmerica Laboratories, Inc. Address: 4955 Yarrow Street, Arvada, CO, 80002 Phone: 303-736-0100 (Tel) 303-431-7171 (Fax) Email:		Lab P.M.: Escarez, Christabel C E-Mail: christabel.escarez@testamericainc.com Carrier Tracking No(s): COC No: 580-38489.1 Page: Page 1 of 1 Job #: 580-59632-1	
Due Date Requested: 6/2/2016 TAT Requested (days): PO #: WO #: Project #: 58009703 SOW#:		<b>Analysis Requested</b> SM4500_S2_D\FIELD_FLTRD Dissolved Sulfide, Field-Filtered Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Field-Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Total Number of Containers:	
Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		Special Instructions/Note: Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
<b>Sample Identification - Client ID (Lab ID)</b> TBGW001-E1 (580-59632-1) TBGW002-E1 (580-59632-2)		Matrix (W=water, S=solid, O=wastobol, L=liquid, A=air) Sample Type (C=Comp, G=grab) Sample Date Sample Time Preservation Code	
5/16/16 12:50 Pacific		Water	
5/16/16 15:20 Pacific		Water	
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)		Method of Shipment:	
Empty Kit Relinquished by:		Date:	
Relinquished by: B. S. [Signature]		Date/Time: 5/18/16 17:09 Company: SEA TA	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 5.01-0.1 ILTS Analyzed by SS	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59632-1

**Login Number: 59632**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59632-1

**Login Number: 59632**

**List Number: 2**

**Creator: True, Joshua A**

**List Source: TestAmerica Denver**

**List Creation: 05/19/16 01:45 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59638-1  
Client Project/Site: Parcel 15 RI - POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/8/2016 5:45:54 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

**Job ID: 580-59638-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-59638-1

#### Receipt

The samples were received on 5/18/2016 8:05 AM; the samples arrived in good condition, properly preserved, and on ice. The temperatures of the 3 coolers at receipt time were 1.7° C, 2.3° C and 13.5° C.

#### Receipt Exceptions

Method(s) 300.0, 365.1: The following samples were received with less than less than one shift (8 hours) remaining for nitrate/nitrite and orthophosphate analyses, which have holding times of 48 hours: TBGW003-E1 (580-59638-1). While the containers for sulfide and organic carbon analyses were received at 0805 on 5/18/16, the unpreserved and nitric preserved containers were mis-delivered. The laboratory did not obtain custody of the containers for nitrate/nitrite and orthophosphate analyses until 1600 on 5/18/16.

The following samples was received at the laboratory outside the required temperature criteria: TBGW003-E1 (580-59638-1), TBGW005-E1 (580-59638-2), TBGW007-E1 (580-59638-3) and TBGW507-E1 (580-59638-4).

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0: The method blank for analytical batch 580-217763 contained Chloride above the method detection limit (MDL). This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

**Client Sample ID: TBGW003-E1**

**Lab Sample ID: 580-59638-1**

**Date Collected: 05/17/16 10:50**

**Matrix: Water**

**Date Received: 05/18/16 08:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110		1.1	0.023	mg/L		06/07/16 14:40	06/08/16 13:54	1
Magnesium	75		1.1	0.13	mg/L		06/07/16 14:40	06/08/16 13:54	1
Potassium	34		3.3	0.15	mg/L		06/07/16 14:40	06/08/16 13:54	1
Sodium	190		100	28	mg/L		06/07/16 14:40	06/08/16 14:07	50

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	66		10	1.9	mg/L			06/06/16 08:37	10

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1.0		0.20	0.030	mg/L			05/19/16 10:34	1
Nitrite as N	ND		0.40	0.080	mg/L			05/19/16 10:34	1
Chloride	140	B	9.0	0.40	mg/L			05/20/16 08:42	10
Nitrate as N	ND		0.20	0.020	mg/L			05/19/16 10:34	1
Bromide	1.2		0.50	0.060	mg/L			05/19/16 10:34	1
Sulfate	1.1	J	1.2	0.26	mg/L			05/19/16 10:34	1
Sulfide	ND		0.050	0.0070	mg/L			05/24/16 17:48	1
Dissolved Organic Carbon	83		10	1.9	mg/L			06/06/16 16:12	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.16		0.10	0.10	mg/L			05/19/16 05:42	1
Bicarbonate Alkalinity as CaCO3	800		5.0	5.0	mg/L			05/28/16 16:15	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			05/28/16 16:15	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

**Client Sample ID: TBGW005-E1**

**Lab Sample ID: 580-59638-2**

**Date Collected: 05/17/16 13:05**

**Matrix: Water**

**Date Received: 05/18/16 08:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	83		1.1	0.023	mg/L		06/07/16 14:40	06/08/16 13:57	1
Magnesium	95		1.1	0.13	mg/L		06/07/16 14:40	06/08/16 13:57	1
Potassium	65		3.3	0.15	mg/L		06/07/16 14:40	06/08/16 13:57	1
Sodium	220		100	28	mg/L		06/07/16 14:40	06/08/16 14:10	50

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	100		10	1.9	mg/L			06/06/16 08:37	10

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1.1		0.20	0.030	mg/L			05/19/16 10:48	1
Nitrite as N	ND		0.40	0.080	mg/L			05/19/16 10:48	1
Chloride	220	B	9.0	0.40	mg/L			05/20/16 08:56	10
Nitrate as N	ND		0.20	0.020	mg/L			05/19/16 10:48	1
Bromide	2.0		0.50	0.060	mg/L			05/19/16 10:48	1
Sulfate	0.47	J	1.2	0.26	mg/L			05/19/16 10:48	1
Sulfide	ND		0.050	0.0070	mg/L			05/24/16 17:48	1
Dissolved Organic Carbon	110		10	1.9	mg/L			06/06/16 16:12	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.13		0.10	0.10	mg/L			05/19/16 05:42	1
Bicarbonate Alkalinity as CaCO3	840		5.0	5.0	mg/L			05/28/16 16:15	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			05/28/16 16:15	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

**Client Sample ID: TBGW007-E1**

**Lab Sample ID: 580-59638-3**

**Date Collected: 05/17/16 16:45**

**Matrix: Water**

**Date Received: 05/18/16 08:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	58		1.1	0.023	mg/L		06/07/16 14:40	06/08/16 14:00	1
Magnesium	56		1.1	0.13	mg/L		06/07/16 14:40	06/08/16 14:00	1
Potassium	75		3.3	0.15	mg/L		06/07/16 14:40	06/08/16 14:00	1
Sodium	340		100	28	mg/L		06/07/16 14:40	06/08/16 14:13	50

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	71		10	1.9	mg/L			06/06/16 08:37	10

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.81		0.20	0.030	mg/L			05/19/16 11:03	1
Nitrite as N	ND		0.40	0.080	mg/L			05/19/16 11:03	1
Chloride	130	B	9.0	0.40	mg/L			05/20/16 09:11	10
Nitrate as N	ND		0.20	0.020	mg/L			05/19/16 11:03	1
Bromide	1.1		0.50	0.060	mg/L			05/19/16 11:03	1
Sulfate	0.48	J	1.2	0.26	mg/L			05/19/16 11:03	1
Sulfide	ND		0.050	0.0070	mg/L			05/24/16 17:48	1
Dissolved Organic Carbon	81		10	1.9	mg/L			06/06/16 16:12	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.17		0.10	0.10	mg/L			05/19/16 05:42	1
Bicarbonate Alkalinity as CaCO3	920		5.0	5.0	mg/L			05/28/16 16:15	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			05/28/16 16:15	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

**Client Sample ID: TBGW507-E1**

**Lab Sample ID: 580-59638-4**

**Date Collected: 05/17/16 17:00**

**Matrix: Water**

**Date Received: 05/18/16 08:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	61		1.1	0.023	mg/L		06/07/16 14:40	06/08/16 14:03	1
Magnesium	58		1.1	0.13	mg/L		06/07/16 14:40	06/08/16 14:03	1
Potassium	78		3.3	0.15	mg/L		06/07/16 14:40	06/08/16 14:03	1
Sodium	340		100	28	mg/L		06/07/16 14:40	06/08/16 14:17	50

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	69		10	1.9	mg/L			06/06/16 08:37	10

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.81		0.20	0.030	mg/L			05/19/16 11:17	1
Nitrite as N	ND		0.40	0.080	mg/L			05/19/16 11:17	1
Chloride	150	B	9.0	0.40	mg/L			05/20/16 09:25	10
Nitrate as N	ND		0.20	0.020	mg/L			05/19/16 11:17	1
Bromide	1.1		0.50	0.060	mg/L			05/19/16 11:17	1
Sulfate	0.51	J	1.2	0.26	mg/L			05/19/16 11:17	1
Sulfide	ND		0.050	0.0070	mg/L			05/24/16 17:48	1
Dissolved Organic Carbon	80		10	1.9	mg/L			06/06/16 16:12	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.16		0.10	0.10	mg/L			05/19/16 05:42	1
Bicarbonate Alkalinity as CaCO3	910		5.0	5.0	mg/L			05/28/16 16:15	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			05/28/16 16:15	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-219066/13-A**  
**Matrix: Water**  
**Analysis Batch: 219210**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 219066**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		06/07/16 14:40	06/08/16 13:18	1
Magnesium	ND		1.1	0.13	mg/L		06/07/16 14:40	06/08/16 13:18	1
Potassium	ND		3.3	0.15	mg/L		06/07/16 14:40	06/08/16 13:18	1
Sodium	ND		2.0	0.55	mg/L		06/07/16 14:40	06/08/16 13:18	1

**Lab Sample ID: LCS 580-219066/14-A**  
**Matrix: Water**  
**Analysis Batch: 219210**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 219066**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	20.3		mg/L		102	80 - 120
Magnesium	20.0	19.2		mg/L		96	80 - 120
Potassium	20.0	21.1		mg/L		105	80 - 120
Sodium	20.0	19.9		mg/L		99	80 - 120

**Lab Sample ID: LCSD 580-219066/15-A**  
**Matrix: Water**  
**Analysis Batch: 219210**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 219066**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	20.0	20.5		mg/L		103	80 - 120	1	20
Magnesium	20.0	19.4		mg/L		97	80 - 120	1	20
Potassium	20.0	21.1		mg/L		106	80 - 120	0	20
Sodium	20.0	20.8		mg/L		104	80 - 120	4	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 580-217763/3**  
**Matrix: Water**  
**Analysis Batch: 217763**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			05/19/16 09:25	1
Chloride	0.530	J	0.90	0.040	mg/L			05/19/16 09:25	1
Bromide	ND		0.50	0.060	mg/L			05/19/16 09:25	1
Sulfate	ND		1.2	0.26	mg/L			05/19/16 09:25	1

**Lab Sample ID: LCS 580-217763/4**  
**Matrix: Water**  
**Analysis Batch: 217763**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	5.05		mg/L		101	90 - 110
Chloride	50.0	50.9		mg/L		102	90 - 110
Bromide	5.00	4.99		mg/L		100	90 - 110
Sulfate	50.0	50.4		mg/L		101	90 - 110

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCSD 580-217763/5**

**Matrix: Water**

**Analysis Batch: 217763**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	5.07		mg/L		101	90 - 110	0	15
Chloride	50.0	51.0		mg/L		102	90 - 110	0	15
Bromide	5.00	5.02		mg/L		100	90 - 110	1	15
Sulfate	50.0	50.5		mg/L		101	90 - 110	0	15

**Lab Sample ID: MB 580-217770/3**

**Matrix: Water**

**Analysis Batch: 217770**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.080	mg/L			05/19/16 09:25	1
Nitrate as N	ND		0.20	0.020	mg/L			05/19/16 09:25	1

**Lab Sample ID: LCS 580-217770/4**

**Matrix: Water**

**Analysis Batch: 217770**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	5.00	5.18		mg/L		104	90 - 110
Nitrate as N	5.00	5.03		mg/L		101	90 - 110

**Lab Sample ID: LCSD 580-217770/5**

**Matrix: Water**

**Analysis Batch: 217770**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	5.00	5.22		mg/L		104	90 - 110	1	15
Nitrate as N	5.00	5.05		mg/L		101	90 - 110	0	15

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID: MB 580-217629/1**

**Matrix: Water**

**Analysis Batch: 217629**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			05/19/16 05:42	1

**Lab Sample ID: LCS 580-217629/2**

**Matrix: Water**

**Analysis Batch: 217629**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	2.02		mg/L		101	90 - 110

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

## Method: SM 2320B - Alkalinity

Lab Sample ID: 580-59638-1 DU  
Matrix: Water  
Analysis Batch: 218329

Client Sample ID: TBGW003-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	800		829		mg/L		3	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20

## Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-326846/4  
Matrix: Water  
Analysis Batch: 326846

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			05/24/16 17:48	1

Lab Sample ID: LCS 280-326846/3  
Matrix: Water  
Analysis Batch: 326846

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.468	0.538		mg/L		115	80 - 119

Lab Sample ID: 580-59638-1 MS  
Matrix: Water  
Analysis Batch: 326846

Client Sample ID: TBGW003-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND		0.450	0.496		mg/L		110	80 - 119

Lab Sample ID: 580-59638-1 MSD  
Matrix: Water  
Analysis Batch: 326846

Client Sample ID: TBGW003-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND		0.450	0.505		mg/L		112	80 - 119	2	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-218879/1  
Matrix: Water  
Analysis Batch: 218879

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/06/16 08:37	1

Lab Sample ID: LCS 580-218879/2  
Matrix: Water  
Analysis Batch: 218879

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	8.92		mg/L		89	85 - 115

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-219043/1**  
**Matrix: Water**  
**Analysis Batch: 219043**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/06/16 16:12	1

**Lab Sample ID: LCS 580-219043/2**  
**Matrix: Water**  
**Analysis Batch: 219043**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.2		mg/L		102	85 - 115



# Lab Chronicle

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

**Client Sample ID: TBGW003-E1**

**Lab Sample ID: 580-59638-1**

**Date Collected: 05/17/16 10:50**

**Matrix: Water**

**Date Received: 05/18/16 08:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			219066	06/07/16 14:40	MKN	TAL SEA
Dissolved	Analysis	6010C		1	219210	06/08/16 13:54	HJM	TAL SEA
Dissolved	Prep	3005A			219066	06/07/16 14:40	MKN	TAL SEA
Dissolved	Analysis	6010C		50	219210	06/08/16 14:07	HJM	TAL SEA
Dissolved	Analysis	300.0		1	217763	05/19/16 10:34	RSB	TAL SEA
Dissolved	Analysis	300.0		1	217770	05/19/16 10:34	RSB	TAL SEA
Dissolved	Analysis	300.0		10	217763	05/20/16 08:42	RSB	TAL SEA
Dissolved	Analysis	365.1		1	217629	05/19/16 05:42	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218329	05/28/16 16:15	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	326846	05/24/16 17:48	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	219043	06/06/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	218879	06/06/16 08:37	Z1T	TAL SEA

**Client Sample ID: TBGW005-E1**

**Lab Sample ID: 580-59638-2**

**Date Collected: 05/17/16 13:05**

**Matrix: Water**

**Date Received: 05/18/16 08:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			219066	06/07/16 14:40	MKN	TAL SEA
Dissolved	Analysis	6010C		1	219210	06/08/16 13:57	HJM	TAL SEA
Dissolved	Prep	3005A			219066	06/07/16 14:40	MKN	TAL SEA
Dissolved	Analysis	6010C		50	219210	06/08/16 14:10	HJM	TAL SEA
Dissolved	Analysis	300.0		1	217763	05/19/16 10:48	RSB	TAL SEA
Dissolved	Analysis	300.0		1	217770	05/19/16 10:48	RSB	TAL SEA
Dissolved	Analysis	300.0		10	217763	05/20/16 08:56	RSB	TAL SEA
Dissolved	Analysis	365.1		1	217629	05/19/16 05:42	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218329	05/28/16 16:15	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	326846	05/24/16 17:48	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	219043	06/06/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	218879	06/06/16 08:37	Z1T	TAL SEA

**Client Sample ID: TBGW007-E1**

**Lab Sample ID: 580-59638-3**

**Date Collected: 05/17/16 16:45**

**Matrix: Water**

**Date Received: 05/18/16 08:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			219066	06/07/16 14:40	MKN	TAL SEA
Dissolved	Analysis	6010C		1	219210	06/08/16 14:00	HJM	TAL SEA
Dissolved	Prep	3005A			219066	06/07/16 14:40	MKN	TAL SEA
Dissolved	Analysis	6010C		50	219210	06/08/16 14:13	HJM	TAL SEA
Dissolved	Analysis	300.0		1	217763	05/19/16 11:03	RSB	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

**Client Sample ID: TBGW007-E1**

**Lab Sample ID: 580-59638-3**

**Date Collected: 05/17/16 16:45**

**Matrix: Water**

**Date Received: 05/18/16 08:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	217770	05/19/16 11:03	RSB	TAL SEA
Dissolved	Analysis	300.0		10	217763	05/20/16 09:11	RSB	TAL SEA
Dissolved	Analysis	365.1		1	217629	05/19/16 05:42	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218329	05/28/16 16:15	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	326846	05/24/16 17:48	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	219043	06/06/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	218879	06/06/16 08:37	Z1T	TAL SEA

**Client Sample ID: TBGW507-E1**

**Lab Sample ID: 580-59638-4**

**Date Collected: 05/17/16 17:00**

**Matrix: Water**

**Date Received: 05/18/16 08:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			219066	06/07/16 14:40	MKN	TAL SEA
Dissolved	Analysis	6010C		1	219210	06/08/16 14:03	HJM	TAL SEA
Dissolved	Prep	3005A			219066	06/07/16 14:40	MKN	TAL SEA
Dissolved	Analysis	6010C		50	219210	06/08/16 14:17	HJM	TAL SEA
Dissolved	Analysis	300.0		1	217763	05/19/16 11:17	RSB	TAL SEA
Dissolved	Analysis	300.0		1	217770	05/19/16 11:17	RSB	TAL SEA
Dissolved	Analysis	300.0		10	217763	05/20/16 09:25	RSB	TAL SEA
Dissolved	Analysis	365.1		1	217629	05/19/16 05:42	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218329	05/28/16 16:15	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	326846	05/24/16 17:48	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	219043	06/06/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	218879	06/06/16 08:37	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-59638-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59638-1	TBGW003-E1	Water	05/17/16 10:50	05/18/16 08:05
580-59638-2	TBGW005-E1	Water	05/17/16 13:05	05/18/16 08:05
580-59638-3	TBGW007-E1	Water	05/17/16 16:45	05/18/16 08:05
580-59638-4	TBGW507-E1	Water	05/17/16 17:00	05/18/16 08:05

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Chain of Custody Record

Loc: 580  
**59638**

Field Sampler(s):  
**GS1**

Client Contact

Project Name: Parcel 15 - POT  
 Project # or PO #: 603.002.010  
 Project Manager: Erin Hughes/Cindy Ryals  
 Phone #: 971-200-8528 and 971-200-8531  
 Report to email: eahughes@gslws.com, cryals@gslws.com

For Lab Use Only:

SDG: \_\_\_\_\_  
 Custody Seals Intact?  Yes  No  
 Hand delivered?  Yes  No  
 Cooler Temp: \_\_\_\_\_ °C  
 Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

Laboratory

TestAmerica  
 Analysis Requested

Brooks

Lab PM

Brooks - Ben  
 Wozniak - 206-753-6158

TestAmerica -  
 Christabel  
 Escarez -  
 253.248.4975

Analysis Turnaround Time:

14 days \*  7 days \*  5 days \*  21 days (STD)  
 3 day \*  2 days \*  1 day \* *see contract*

Sample Identification

Sample Date	Sample Time	Sample Type (G-Comp, G-Grab)	Matrix	Total # of Cont.
TB6M003-E1	5/11/16	1050	G	M
TB6M005-E1	↓	1305	↓	↓
TB6M007-E1	1645	↓	↓	↓
TB6M507-E1	5/11/16	1700	G	M

Sample Date	Sample Time	Sample Type (G-Comp, G-Grab)	Matrix	Total # of Cont.	Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrite (dissolved; field filtered)**	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	Sample Specific Notes:	
TB6M003-E1	5/11/16	1050	G	M	X	X	X	X	X	X			X					TB Cooler for Cor 13.5 Unc 13.3 Cooler Disc 13.5 @ Lab 1510 Wet/Racks Packing 0766
TB6M005-E1	↓	1305	↓	↓	X	X	X	X	X	X			X					TB Cooler for Cor 1.7 Unc 1.5 Cooler Disc 1.7 @ Lab Wet/Racks Packing 0766
TB6M007-E1	1645	↓	↓	↓	X	X	X	X	X	X			X					TB Cooler for Cor 2.3 Unc 2.3 Cooler Disc 2.3 @ Lab Wet/Racks Packing 0766
TB6M507-E1	5/11/16	1700	G	M	X	X	X	X	X	X			X					TB Cooler for Cor 2.3 Unc 2.3 Cooler Disc 2.3 @ Lab Wet/Racks Packing 0766



580-59638 Chain of Custody

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive for

Possible Hazard Identification:  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

Received by: *P. Stoll* Date/Time: *5/18/16 0805*  
 Relinquished by: *Deane F. Z. Du. G. N.* Date/Time: *5/18/16 805*

Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Shipped Via:  UPS  FedEx  USPS  Other Tracking #: \_\_\_\_\_

Special Instructions/QC Requirements

\*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 \*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
 Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b> Client Contact: Escarez, Christabel C Shipping/Receiving: christabel.escarez@testamericainc.com Company: TestAmerica Laboratories, Inc.		Lab P/N: Escarez, Christabel C E-Mail: christabel.escarez@testamericainc.com		Carrier Tracking No(s): COC No: 580-38510-1 Page: Page 1 of 1 Job #: 580-59638-1					
Address: 4955 Yarrow Street City: Arvada State, Zip: CO, 80002 Phone: 303-738-0100 (Tel) 303-431-7171 (Fax) Email:		Due Date Requested: 6/3/2016 TAT Requested (days): PO #: WO #: Project #: 58009703 Site: Parcel 15 RI - POT		<b>Analysis Requested</b> Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - H2SO4 S - Amchlor T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Y - EDA Z - other (specify) Other:					
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wastebot, BT=Tissue Acid)	Field Filtered Sample (Yes or No)	Perform MSD (Yes or No)	SM4500_S2_D/FIELD_FLTRD Dissolved Sulfide, field-filtered	Total Number of Containers	Special Instructions/Note:
TBGW003-E1 (580-59638-1)	5/17/16	10:50 Pacific	Water	Water	X	X		1	
TBGW005-E1 (580-59638-2)	5/17/16	13:05 Pacific	Water	Water	X	X		1	
TBGW007-E1 (580-59638-3)	5/17/16	16:45 Pacific	Water	Water	X	X		1	
TBGW507-E1 (580-59638-4)	5/17/16	17:00 Pacific	Water	Water	X	X		1	
<b>Possible Hazard Identification</b> Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)									
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Special Instructions/QC Requirements:									
Empty Kit Relinquished by:		Date:		Method of Shipment:					
Relinquished by: Tom Blantz		Date/Time: 5/19/16		Company: TA-SEA		Received by: [Signature]		Date/Time: 04/15 20 May 16	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 5.0, 0.5, 2.1, 20 May 16 Transfer [Signature]					



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59638-1

**Login Number: 59638**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59638-1

**Login Number: 59638**

**List Number: 2**

**Creator: Muniz, Ashley T**

**List Source: TestAmerica Denver**

**List Creation: 05/20/16 04:22 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING


## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59668-1  
Client Project/Site: Parcel 15-POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/24/2016 3:24:45 PM  
Kristine Allen, Manager of Project Management  
(253)248-4970  
[kristine.allen@testamericainc.com](mailto:kristine.allen@testamericainc.com)

Designee for  
Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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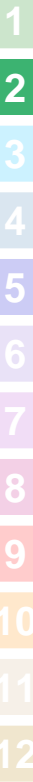
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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

**Job ID: 580-59668-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-59668-1

#### Receipt

The samples were received on 5/16/2016 1:05 PM; the samples arrived in good condition, properly preserved, and on ice. The temperature of the cooler at receipt was 5.0° C.

#### GC/MS Semi VOA

Method(s) 8270C SIM, 8270D SIM: The following samples were diluted due to the nature of the sample matrix: MWS005R-10.5\_11.5 (580-59668-1), (580-59668-B-1-B MS) and (580-59668-B-1-C MSD). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Dioxin

Method(s) 1613B: The concentration of one or more analytes associated with the following sample exceeded the instrument calibration range: MWS005R-10.5\_11.5 (580-59668-1). These analytes have been qualified; however, the peak did not saturate the instrument detector. Historical data indicate that for the isotope dilution method, dilution and re-analysis will not produce significantly different results from those reported above the calibration range.

Method(s) 1613B: The following sample exhibited elevated noise or matrix interferences for one or more analytes causing elevation of the detection limit (EDL): MWS005R-10.5\_11.5 (580-59668-1). The reporting limit (RL) for the affected analytes has been raised to be equal to the EDL, and a "G" qualifier applied.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

Method(s) 9034: The following samples for Sulfide batch 280-327982 were received outside of holding time: MWS013-12.5\_13.5 (580-59668-4) and MWS010-12\_13 (580-59668-5).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Geotechnical

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

### Dioxin

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
E	Result exceeded calibration range.
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

### General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

**Client Sample ID: MWS005R-10.5\_11.5**

**Lab Sample ID: 580-59668-1**

Date Collected: 05/09/16 14:45

Matrix: Solid

Date Received: 05/16/16 13:05

Percent Solids: 86.0

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.56	F1	0.20	0.049	mg/Kg	☼	05/20/16 08:20	05/21/16 17:44	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	75		28 - 143				05/20/16 08:20	05/21/16 17:44	10

**Method: 1613B - Dioxins and Furans (HRGC/HRMS)**

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.63	J	1.1	0.056	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
1,2,3,7,8-PeCDD	5.4	J	5.7	0.42	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
1,2,3,4,7,8-HxCDD	ND	G	6.8	6.8	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
1,2,3,6,7,8-HxCDD	980	G	6.6	6.6	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
1,2,3,7,8,9-HxCDD	250		5.7	5.5	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
1,2,3,7,8-PeCDF	12		5.7	1.2	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
2,3,4,7,8-PeCDF	33		5.7	1.2	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
1,2,3,4,7,8-HxCDF	10		5.7	3.9	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
1,2,3,6,7,8-HxCDF	7.3		5.7	3.5	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
2,3,4,6,7,8-HxCDF	15		5.7	3.3	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
1,2,3,7,8,9-HxCDF	ND		5.7	3.2	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
1,2,3,4,6,7,8-HpCDF	390	B	5.7	4.0	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
1,2,3,4,7,8,9-HpCDF	ND	G	7.0	7.0	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
OCDF	180	B	11	0.26	pg/g	☼	05/24/16 13:07	05/25/16 20:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	64		25 - 164				05/24/16 13:07	05/25/16 20:14	1
13C-1,2,3,7,8-PeCDD	60		25 - 181				05/24/16 13:07	05/25/16 20:14	1
13C-1,2,3,4,7,8-HxCDD	69		32 - 141				05/24/16 13:07	05/25/16 20:14	1
13C-1,2,3,6,7,8-HxCDD	72		28 - 130				05/24/16 13:07	05/25/16 20:14	1
13C-1,2,3,4,6,7,8-HpCDD	60		23 - 140				05/24/16 13:07	05/25/16 20:14	1
13C-OCDD	49		17 - 157				05/24/16 13:07	05/25/16 20:14	1
13C-1,2,3,7,8-PeCDF	63		24 - 185				05/24/16 13:07	05/25/16 20:14	1
13C-2,3,4,7,8-PeCDF	65		21 - 178				05/24/16 13:07	05/25/16 20:14	1
13C-1,2,3,4,7,8-HxCDF	74		26 - 152				05/24/16 13:07	05/25/16 20:14	1
13C-1,2,3,6,7,8-HxCDF	77		26 - 123				05/24/16 13:07	05/25/16 20:14	1
13C-2,3,4,6,7,8-HxCDF	74		28 - 136				05/24/16 13:07	05/25/16 20:14	1
13C-1,2,3,7,8,9-HxCDF	63		29 - 147				05/24/16 13:07	05/25/16 20:14	1
13C-1,2,3,4,6,7,8-HpCDF	59		28 - 143				05/24/16 13:07	05/25/16 20:14	1
13C-1,2,3,4,7,8,9-HpCDF	36		26 - 138				05/24/16 13:07	05/25/16 20:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	111		35 - 197				05/24/16 13:07	05/25/16 20:14	1

**Method: 1613B - Dioxins and Furans (HRGC/HRMS) - DL**

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	6800		57	39	pg/g	☼	05/24/16 13:07	05/26/16 23:58	10
OCDD	88000	E B	110	52	pg/g	☼	05/24/16 13:07	05/26/16 23:58	10
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	68		23 - 140				05/24/16 13:07	05/26/16 23:58	10
13C-OCDD	74		17 - 157				05/24/16 13:07	05/26/16 23:58	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	110		35 - 197				05/24/16 13:07	05/26/16 23:58	10

TestAmerica Seattle

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>2,3,7,8-TCDF</b>	<b>32</b>		1.1	0.47	pg/g	☼	05/24/16 13:07	05/25/16 20:38	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C-2,3,7,8-TCDF	58		24 - 169				05/24/16 13:07	05/25/16 20:38	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
37Cl4-2,3,7,8-TCDD	103		35 - 197				05/24/16 13:07	05/25/16 20:38	1

## General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>10.5</b>				SU			05/24/16 17:53	1
<b>Total Organic Carbon - Duplicates</b>	<b>8400</b>		2000	44	mg/Kg			05/23/16 15:05	1
<b>Percent Solids</b>	<b>86.0</b>		0.1	0.1	%			05/19/16 16:08	1
<b>Percent Moisture</b>	<b>14.0</b>		0.1	0.1	%			05/19/16 16:08	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

**Client Sample ID: MWS008-11.5\_12.5**

**Lab Sample ID: 580-59668-2**

**Date Collected: 05/09/16 16:50**

**Matrix: Solid**

**Date Received: 05/16/16 13:05**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	5600		2000	44	mg/Kg			05/23/16 15:10	1

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# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

**Client Sample ID: MWS011-13\_14**

**Lab Sample ID: 580-59668-3**

**Date Collected: 05/10/16 09:25**

**Matrix: Solid**

**Date Received: 05/16/16 13:05**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	6500		2000	44	mg/Kg			05/23/16 15:16	1

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# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

**Client Sample ID: MWS013-12.5\_13.5**

**Lab Sample ID: 580-59668-4**

**Date Collected: 05/10/16 11:35**

**Matrix: Solid**

**Date Received: 05/16/16 13:05**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>6400</b>		2000	44	mg/Kg			05/23/16 15:21	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>75.8</b>		0.1	0.1	%			05/19/16 16:08	1
<b>Percent Moisture</b>	<b>24.2</b>		0.1	0.1	%			05/19/16 16:08	1

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>0.0</b>				%			05/25/16 11:23	1
<b>Coarse Sand</b>	<b>0.0</b>				%			05/25/16 11:23	1
<b>Medium Sand</b>	<b>0.3</b>				%			05/25/16 11:23	1
<b>Fine Sand</b>	<b>29.9</b>				%			05/25/16 11:23	1
<b>Silt</b>	<b>45.0</b>				%			05/25/16 11:23	1
<b>Clay</b>	<b>24.8</b>				%			05/25/16 11:23	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

**Client Sample ID: MWS013-12.5\_13.5**

**Lab Sample ID: 580-59668-4**

**Date Collected: 05/10/16 11:35**

**Matrix: Solid**

**Date Received: 05/16/16 13:05**

**Percent Solids: 75.8**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	4.2	JH	6.5	3.1	mg/Kg	☼	06/01/16 11:43	06/01/16 14:57	1

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# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

**Client Sample ID: MWS010-12\_13**

**Lab Sample ID: 580-59668-5**

**Date Collected: 05/10/16 15:05**

**Matrix: Solid**

**Date Received: 05/16/16 13:05**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>12000</b>		2000	44	mg/Kg			05/23/16 15:27	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>74.3</b>		0.1	0.1	%			05/19/16 16:08	1
<b>Percent Moisture</b>	<b>25.7</b>		0.1	0.1	%			05/19/16 16:08	1

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>0.0</b>				%			05/25/16 11:23	1
<b>Coarse Sand</b>	<b>0.0</b>				%			05/25/16 11:23	1
<b>Medium Sand</b>	<b>1.2</b>				%			05/25/16 11:23	1
<b>Fine Sand</b>	<b>13.8</b>				%			05/25/16 11:23	1
<b>Silt</b>	<b>61.2</b>				%			05/25/16 11:23	1
<b>Clay</b>	<b>23.7</b>				%			05/25/16 11:23	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

**Client Sample ID: MWS010-12\_13**

**Lab Sample ID: 580-59668-5**

**Date Collected: 05/10/16 15:05**

**Matrix: Solid**

**Date Received: 05/16/16 13:05**

**Percent Solids: 74.3**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	3.2	JH	6.7	3.2	mg/Kg	☼	06/01/16 11:43	06/01/16 14:57	1

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# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-217730/1-A**

**Matrix: Solid**

**Analysis Batch: 217816**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 217730**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.020	0.0050	mg/Kg		05/20/16 08:20	05/21/16 16:37	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	94		28 - 143				05/20/16 08:20	05/21/16 16:37	1

**Lab Sample ID: LCS 580-217730/2-A**

**Matrix: Solid**

**Analysis Batch: 217816**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 217730**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	2.00	2.06		mg/Kg		103	45 - 117
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4,6-Tribromophenol	106		28 - 143				

**Lab Sample ID: LCSD 580-217730/3-A**

**Matrix: Solid**

**Analysis Batch: 217816**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 217730**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	2.00	2.06		mg/Kg		103	45 - 117	0	23
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	102		28 - 143						

**Lab Sample ID: 580-59668-1 MS**

**Matrix: Solid**

**Analysis Batch: 217816**

**Client Sample ID: MWS005R-10.5\_11.5**

**Prep Type: Total/NA**

**Prep Batch: 217730**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	0.56	F1	2.20	1.30	F1	mg/Kg	☼	34	45 - 117
Surrogate	MS %Recovery	MS Qualifier	Limits						
2,4,6-Tribromophenol	83		28 - 143						

**Lab Sample ID: 580-59668-1 MSD**

**Matrix: Solid**

**Analysis Batch: 217816**

**Client Sample ID: MWS005R-10.5\_11.5**

**Prep Type: Total/NA**

**Prep Batch: 217730**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	0.56	F1	2.09	1.26	F1	mg/Kg	☼	33	45 - 117	3	68
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
2,4,6-Tribromophenol	86		28 - 143								

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

**Lab Sample ID: MB 320-111100/1-A**

**Matrix: Solid**

**Analysis Batch: 111411**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 111100**

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		1.0	0.044	pg/g		05/24/16 13:07	05/25/16 16:25	1
1,2,3,7,8-PeCDD	ND		5.0	0.050	pg/g		05/24/16 13:07	05/25/16 16:25	1
1,2,3,4,7,8-HxCDD	ND		5.0	0.041	pg/g		05/24/16 13:07	05/25/16 16:25	1
1,2,3,6,7,8-HxCDD	ND		5.0	0.038	pg/g		05/24/16 13:07	05/25/16 16:25	1
1,2,3,7,8,9-HxCDD	ND		5.0	0.032	pg/g		05/24/16 13:07	05/25/16 16:25	1
1,2,3,4,6,7,8-HpCDD	ND		5.0	0.035	pg/g		05/24/16 13:07	05/25/16 16:25	1
OCDD	0.328	J	10	0.032	pg/g		05/24/16 13:07	05/25/16 16:25	1
2,3,7,8-TCDF	ND		1.0	0.034	pg/g		05/24/16 13:07	05/25/16 16:25	1
1,2,3,7,8-PeCDF	ND		5.0	0.037	pg/g		05/24/16 13:07	05/25/16 16:25	1
2,3,4,7,8-PeCDF	ND		5.0	0.042	pg/g		05/24/16 13:07	05/25/16 16:25	1
1,2,3,4,7,8-HxCDF	ND		5.0	0.040	pg/g		05/24/16 13:07	05/25/16 16:25	1
1,2,3,6,7,8-HxCDF	ND		5.0	0.033	pg/g		05/24/16 13:07	05/25/16 16:25	1
2,3,4,6,7,8-HxCDF	ND		5.0	0.030	pg/g		05/24/16 13:07	05/25/16 16:25	1
1,2,3,7,8,9-HxCDF	ND		5.0	0.032	pg/g		05/24/16 13:07	05/25/16 16:25	1
1,2,3,4,6,7,8-HpCDF	0.0408	J q	5.0	0.029	pg/g		05/24/16 13:07	05/25/16 16:25	1
1,2,3,4,7,8,9-HpCDF	ND		5.0	0.046	pg/g		05/24/16 13:07	05/25/16 16:25	1
OCDF	0.142	J q	10	0.061	pg/g		05/24/16 13:07	05/25/16 16:25	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	55		25 - 164	05/24/16 13:07	05/25/16 16:25	1
13C-1,2,3,7,8-PeCDD	50		25 - 181	05/24/16 13:07	05/25/16 16:25	1
13C-1,2,3,4,7,8-HxCDD	47		32 - 141	05/24/16 13:07	05/25/16 16:25	1
13C-1,2,3,6,7,8-HxCDD	61		28 - 130	05/24/16 13:07	05/25/16 16:25	1
13C-1,2,3,4,6,7,8-HpCDD	55		23 - 140	05/24/16 13:07	05/25/16 16:25	1
13C-OCDD	52		17 - 157	05/24/16 13:07	05/25/16 16:25	1
13C-2,3,7,8-TCDF	54		24 - 169	05/24/16 13:07	05/25/16 16:25	1
13C-1,2,3,7,8-PeCDF	52		24 - 185	05/24/16 13:07	05/25/16 16:25	1
13C-2,3,4,7,8-PeCDF	49		21 - 178	05/24/16 13:07	05/25/16 16:25	1
13C-1,2,3,4,7,8-HxCDF	51		26 - 152	05/24/16 13:07	05/25/16 16:25	1
13C-1,2,3,6,7,8-HxCDF	58		26 - 123	05/24/16 13:07	05/25/16 16:25	1
13C-2,3,4,6,7,8-HxCDF	56		28 - 136	05/24/16 13:07	05/25/16 16:25	1
13C-1,2,3,7,8,9-HxCDF	51		29 - 147	05/24/16 13:07	05/25/16 16:25	1
13C-1,2,3,4,6,7,8-HpCDF	57		28 - 143	05/24/16 13:07	05/25/16 16:25	1
13C-1,2,3,4,7,8,9-HpCDF	54		26 - 138	05/24/16 13:07	05/25/16 16:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	100		35 - 197	05/24/16 13:07	05/25/16 16:25	1

**Lab Sample ID: LCS 320-111100/2-A**

**Matrix: Solid**

**Analysis Batch: 111411**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 111100**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	20.0	20.7		pg/g		104	67 - 158
1,2,3,7,8-PeCDD	100	109		pg/g		109	70 - 142
1,2,3,4,7,8-HxCDD	100	114		pg/g		114	70 - 164
1,2,3,6,7,8-HxCDD	100	108		pg/g		108	76 - 134
1,2,3,7,8,9-HxCDD	100	112		pg/g		112	64 - 162

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

**Lab Sample ID: LCS 320-111100/2-A**

**Matrix: Solid**

**Analysis Batch: 111411**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 111100**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD	100	112		pg/g		112	70 - 140
OCDD	200	223		pg/g		111	78 - 144
2,3,7,8-TCDF	20.0	20.1		pg/g		100	75 - 158
1,2,3,7,8-PeCDF	100	113		pg/g		113	80 - 134
2,3,4,7,8-PeCDF	100	112		pg/g		112	68 - 160
1,2,3,4,7,8-HxCDF	100	106		pg/g		106	72 - 134
1,2,3,6,7,8-HxCDF	100	109		pg/g		109	84 - 130
2,3,4,6,7,8-HxCDF	100	111		pg/g		111	70 - 156
1,2,3,7,8,9-HxCDF	100	108		pg/g		108	78 - 130
1,2,3,4,6,7,8-HpCDF	100	116		pg/g		116	82 - 122
1,2,3,4,7,8,9-HpCDF	100	112		pg/g		112	78 - 138
OCDF	200	228		pg/g		114	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	59		20 - 175
13C-1,2,3,7,8-PeCDD	53		21 - 227
13C-1,2,3,4,7,8-HxCDD	53		21 - 193
13C-1,2,3,6,7,8-HxCDD	66		25 - 163
13C-1,2,3,4,6,7,8-HpCDD	57		26 - 166
13C-OCDD	56		13 - 199
13C-2,3,7,8-TCDF	59		22 - 152
13C-1,2,3,7,8-PeCDF	56		21 - 192
13C-2,3,4,7,8-PeCDF	56		13 - 328
13C-1,2,3,4,7,8-HxCDF	57		19 - 202
13C-1,2,3,6,7,8-HxCDF	61		21 - 159
13C-2,3,4,6,7,8-HxCDF	58		22 - 176
13C-1,2,3,7,8,9-HxCDF	55		17 - 205
13C-1,2,3,4,6,7,8-HpCDF	61		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	58		20 - 186

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	105		35 - 197

## Method: 9034 - Sulfide, Acid Soluble and Insoluble (Titrimetric)

**Lab Sample ID: MB 280-327935/2-A**

**Matrix: Solid**

**Analysis Batch: 327982**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 327935**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		5.0	2.4	mg/Kg		06/01/16 11:43	06/01/16 14:57	1

**Lab Sample ID: LCS 280-327935/1-A**

**Matrix: Solid**

**Analysis Batch: 327982**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 327935**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	87.5	78.3		mg/Kg		89	38 - 104

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

## Method: 9060\_PSEP - TOC (Puget Sound)

**Lab Sample ID: MB 580-217896/7**

**Matrix: Solid**

**Analysis Batch: 217896**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		2000	44	mg/Kg			05/23/16 13:42	1

**Lab Sample ID: LCS 580-217896/8**

**Matrix: Solid**

**Analysis Batch: 217896**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	4620	4910		mg/Kg		106	49 - 151

**Lab Sample ID: LCSD 580-217896/9**

**Matrix: Solid**

**Analysis Batch: 217896**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	4620	5250		mg/Kg		114	49 - 151	7	35

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

**Client Sample ID: MWS005R-10.5\_11.5**

**Lab Sample ID: 580-59668-1**

Date Collected: 05/09/16 14:45

Matrix: Solid

Date Received: 05/16/16 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218005	05/24/16 17:53	Z1T	TAL SEA
Total/NA	Analysis	9060_PSEP		1	217896	05/23/16 15:05	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217695	05/19/16 16:08	J1J	TAL SEA

**Client Sample ID: MWS005R-10.5\_11.5**

**Lab Sample ID: 580-59668-1**

Date Collected: 05/09/16 14:45

Matrix: Solid

Date Received: 05/16/16 13:05

Percent Solids: 86.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			217730	05/20/16 08:20	J1J	TAL SEA
Total/NA	Analysis	8270D SIM		10	217816	05/21/16 17:44	D1R	TAL SEA
Total/NA	Prep	HRMS-Sox	DL		111100	05/24/16 13:07	DXD	TAL SAC
Total/NA	Analysis	1613B	DL	10	111637	05/26/16 23:58	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox			111100	05/24/16 13:07	DXD	TAL SAC
Total/NA	Analysis	1613B		1	111411	05/25/16 20:14	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		111100	05/24/16 13:07	DXD	TAL SAC
Total/NA	Analysis	1613B	RA	1	111414	05/25/16 20:38	ALM	TAL SAC

**Client Sample ID: MWS008-11.5\_12.5**

**Lab Sample ID: 580-59668-2**

Date Collected: 05/09/16 16:50

Matrix: Solid

Date Received: 05/16/16 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	217896	05/23/16 15:10	SPP	TAL SEA

**Client Sample ID: MWS011-13\_14**

**Lab Sample ID: 580-59668-3**

Date Collected: 05/10/16 09:25

Matrix: Solid

Date Received: 05/16/16 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	217896	05/23/16 15:16	SPP	TAL SEA

**Client Sample ID: MWS013-12.5\_13.5**

**Lab Sample ID: 580-59668-4**

Date Collected: 05/10/16 11:35

Matrix: Solid

Date Received: 05/16/16 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	217896	05/23/16 15:21	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217695	05/19/16 16:08	J1J	TAL SEA
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

**Client Sample ID: MWS013-12.5\_13.5**

**Lab Sample ID: 580-59668-4**

Date Collected: 05/10/16 11:35

Matrix: Solid

Date Received: 05/16/16 13:05

Percent Solids: 75.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			327935	06/01/16 11:43	CML	TAL DEN
Total/NA	Analysis	9034		1	327982	06/01/16 14:57	CML	TAL DEN

**Client Sample ID: MWS010-12\_13**

**Lab Sample ID: 580-59668-5**

Date Collected: 05/10/16 15:05

Matrix: Solid

Date Received: 05/16/16 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	217896	05/23/16 15:27	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217695	05/19/16 16:08	J1J	TAL SEA
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: MWS010-12\_13**

**Lab Sample ID: 580-59668-5**

Date Collected: 05/10/16 15:05

Matrix: Solid

Date Received: 05/16/16 13:05

Percent Solids: 74.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			327935	06/01/16 11:43	CML	TAL DEN
Total/NA	Analysis	9034		1	327982	06/01/16 14:57	CML	TAL DEN

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9045D		Solid	pH
9060_PSEP		Solid	Total Organic Carbon - Duplicates
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

## Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

## Laboratory: TestAmerica Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C581	05-05-17

The following analytes are included in this report, but are not certified under this certification:

Analysis Method	Prep Method	Matrix	Analyte
1613B	HRMS-Sox	Solid	1,2,3,4,6,7,8-HpCDD
1613B	HRMS-Sox	Solid	1,2,3,4,6,7,8-HpCDF
1613B	HRMS-Sox	Solid	1,2,3,4,7,8,9-HpCDF
1613B	HRMS-Sox	Solid	1,2,3,4,7,8-HxCDD
1613B	HRMS-Sox	Solid	1,2,3,4,7,8-HxCDF
1613B	HRMS-Sox	Solid	1,2,3,6,7,8-HxCDD
1613B	HRMS-Sox	Solid	1,2,3,6,7,8-HxCDF
1613B	HRMS-Sox	Solid	1,2,3,7,8,9-HxCDD
1613B	HRMS-Sox	Solid	1,2,3,7,8,9-HxCDF
1613B	HRMS-Sox	Solid	1,2,3,7,8-PeCDD
1613B	HRMS-Sox	Solid	1,2,3,7,8-PeCDF
1613B	HRMS-Sox	Solid	2,3,4,6,7,8-HxCDF
1613B	HRMS-Sox	Solid	2,3,4,7,8-PeCDF
1613B	HRMS-Sox	Solid	2,3,7,8-TCDD
1613B	HRMS-Sox	Solid	2,3,7,8-TCDF
1613B	HRMS-Sox	Solid	OCDD
1613B	HRMS-Sox	Solid	OCDF

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59668-1	MWS005R-10.5_11.5	Solid	05/09/16 14:45	05/16/16 13:05
580-59668-2	MWS008-11.5_12.5	Solid	05/09/16 16:50	05/16/16 13:05
580-59668-3	MWS011-13_14	Solid	05/10/16 09:25	05/16/16 13:05
580-59668-4	MWS013-12.5_13.5	Solid	05/10/16 11:35	05/16/16 13:05
580-59668-5	MWS010-12_13	Solid	05/10/16 15:05	05/16/16 13:05

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55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

Chain of Custody Record

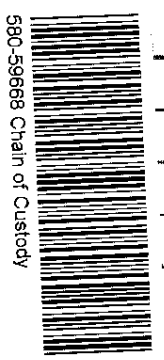
Field Sampler(s): GSA

Client Contact  
 Project Name: Parcel 15 - POT  
 Project # or PO #: 603.002.010  
 Project Manager: Erin Hughes/Cindy Ryals  
 Phone #: 971-200-8528 and 971-200-8531  
 Report to email: erinhughes@gsls.com, cryals@gsls.com

For Lab Use Only:  
 SDCs: \_\_\_\_\_  
 Custody Seals Intact?  Yes  No  
 Hand delivered?  Yes  No  
 Cooler Temp: \_\_\_\_\_ °C  
 Therm ID No.: \_\_\_\_\_ Therm Exp: \_\_\_\_\_

Analysis Turnaround Time:  21 days (STD)  
 14 days \*  7 days \*  5 days \*  
 3 day \*  2 days \*  1 day \*

Sample Identification	Sample Date	Sample Time	Sample Type (soil, sediment, etc)	Matrix	Total # of Cont.	Analysis Requested											Sample Specific Notes		
						Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dixon/Furans		Sulfide	Grain Size
MNS005R-10.5-11.5	5/11/16	1445	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X		
MNS008-11.5-12.5	5/10/16	1450	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X		
MNS011-13-14	5/10/16	1425	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X		
MNS018-12.5-13.5	5/10/16	135	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X		
MNS010-12-13	5/10/16	1505	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X		



580-59688 Chain of Custody

TB Cooler Ice Cor 2.0% Unc 4%  
 Cooler Disc [WetPacks@Lab](mailto:WetPacks@Lab)  
 WetPacks Packing 0.001/0

Possible Hazard Identification:  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Labeled  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

Received by: John Wainwright Date/Time: 5/11/16 10:05  
 Received by: Shelie Date/Time: 5/11/16 14:30  
 Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished by: John Wainwright Date/Time: 5/11/16 18:00  
 Relinquished by: Shelie Date/Time: 5/10/16 11:15  
 Shipped Via:  UPS  Fed-Ex  USPS  Other  
 Tracking #: \_\_\_\_\_

Special Instructions/QC Requirements  
 \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.  
 \*\* Brooks to archive approximately 8 oz of extra homogenized sediment frozen for potential future analysis.  
 \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

see 5877 photos  
 A-3 + 14-5

# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Lab P/N: Escarez, Christabel C		Carrier Tracking No(s):				
Client Contact: Shipping/Receiving		E-Mail: christabel.escarez@testamericainc.com		COC No: 580-38510.1				
Company: TestAmerica Laboratories, Inc.		Due Date Requested: 6/1/2016		Page: Page 1 of 1				
Address: 4955 Yarrow Street,		TAT Requested (days):		Job #: 580-59668-1				
City: Anvada		PO #:		Preservation Codes:				
State, Zip: CO, 80002		WO #:		A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S Q - Na2SO3 R - NaHSO4 S - H2SO4 E - MeOH G - Amchlor T - TSP Dodecahydrate H - Ascorbic Acid I - Ice J - DI Water U - Acetone K - EDTA V - MCAA W - ph 4-5 L - EDA Z - other (specify) Other:				
Project Name: Parcel 15-POT		Project #: 58009703		Special Instructions/Note:				
Site:		SSOW#:		Total Number of Containers				
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/Oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Form (MS/MSD Mass or No)	9034/9030B	Analysis Requested
MWS013-12.5_13.5 (580-59668-4)	5/10/16	11:35 Pacific	Solid	Solid	X	X	X	
MWS010-12_13 (580-59668-5)	5/10/16	15:05 Pacific	Solid	Solid	X	X	X	
<p><b>Possible Hazard Identification</b></p> <p>Unconfirmed <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p> <p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <p>Special Instructions/QC Requirements:</p>								
Empty Kit Relinquished by:		Date:		Method of Shipment:				
Relinquished by: Tom Blant	Date/Time: 5/19/16	Company: TA-Sea	Received by: ASB	Date/Time: 05/20/2016	Company: TA			
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:			
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:			
Custody Seals Intact Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 510 12.5-13.5 20 May 16 Transfer AM						



**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler	Lab PM		Carrier Tracking No(s)		COC No		
Shipping/Receiving		Phone	Escarez, Christiabel C		580-38508 1		Page		
Company		E-Mail		Page 1 of 1		Job #		580-59668-1	
TestAmerica Laboratories, Inc.		chrstiabel.escarez@testamericainc.com		<b>Analysis Requested</b>		<b>Preservation Codes:</b>		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Address: 880 Riverside Parkway,		Due Date Requested: 6/1/2016		Total Number of Containers		M - Hexane N - None O - AsNBO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecathylate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)		Special Instructions/Note:	
City West Sacramento		TAT Requested (days):		1613/HRMS_Sox_P Full List w/o Totals		Field Filtered Sample (Yes or No)		Field Filtered Sample (Yes or No)	
State, Zip CA, 95605		PO #		X		X		X	
Phone 916-373-5600(Tel) 916-372-1059(Fax)		WO #		X		X		X	
Email		Project # 58009703		X		X		X	
Parcel # 15-POT		SSOW#		X		X		X	
Site		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=wastail)	
MWS005R-10 5_11.5 (580-59668-1)		5/9/16		14.45 Pacific		Solid		Solid	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=wastail)	
MWS005R-10 5_11.5 (580-59668-1)		5/9/16		14.45 Pacific		Solid		Solid	
Possible Hazard Identification		Date		Date		Date		Date	
Unconfirmed		5/19/16		5/19/16		5/19/16		5/19/16	
Deliverable Requested: I, III, IV, Other (specify)		Company		Company		Company		Company	
Empty Kit Relinquished by:		TA-Sea		TA-Sea		TA-Sea		TA-Sea	
Relinquished by		Date/Time		Date/Time		Date/Time		Date/Time	
Relinquished by		Date/Time		Date/Time		Date/Time		Date/Time	
Relinquished by		Date/Time		Date/Time		Date/Time		Date/Time	
Custody Seals Intact		Custody Seal No.		Custody Seal No.		Custody Seal No.		Custody Seal No.	
Δ Yes Δ No		1, 2		1, 2		1, 2		1, 2	





## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59668-1

**Login Number: 59668**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gamble, Cathy L**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59668-1

**Login Number: 59668**

**List Number: 2**

**Creator: Muniz, Ashley T**

**List Source: TestAmerica Denver**

**List Creation: 05/20/16 04:22 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59668-1

**Login Number: 59668**

**List Number: 3**

**Creator: Kester, Richard**

**List Source: TestAmerica Sacramento**

**List Creation: 05/20/16 06:05 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	False	1613 received in clear jar
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Isotope Dilution Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDD (25-164)	PeCDD (21-227)	PeCDD (25-181)	HxCDD1 (21-193)	HxCDD1 (32-141)	HxCDD2 (25-163)	HxCDD2 (28-130)
580-59668-1	MWS005R-10.5_11.5		64		60		69		72
580-59668-1 - DL	MWS005R-10.5_11.5								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HpCDD (23-140)	HpCDD (26-166)	OCDD (13-199)	OCDD (17-157)	TCDF (22-152)	TCDF (24-169)	PeCDF1 (21-192)	PeCDF1 (24-185)
580-59668-1	MWS005R-10.5_11.5	60			49				63
580-59668-1 - DL	MWS005R-10.5_11.5	68			74				

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PeCDF2 (13-328)	PeCDF2 (21-178)	HxCDF1 (19-202)	HxCDF1 (26-152)	HxCDF2 (21-159)	HxCDF2 (26-123)	HxCDF3 (22-176)	HxCDF3 (28-136)
580-59668-1	MWS005R-10.5_11.5		65		74		77		74
580-59668-1 - DL	MWS005R-10.5_11.5								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HxCDF4 (17-205)	HxCDF4 (29-147)	HpCDF1 (21-158)	HpCDF1 (28-143)	HpCDF2 (20-186)	HpCDF2 (26-138)		
580-59668-1	MWS005R-10.5_11.5		63		59		36		
580-59668-1 - DL	MWS005R-10.5_11.5								

### Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- PeCDD = 13C-1,2,3,7,8-PeCDD
- HxCDD1 = 13C-1,2,3,4,7,8-HxCDD
- HxCDD2 = 13C-1,2,3,6,7,8-HxCDD
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- OCDD = 13C-OCDD
- PeCDF1 = 13C-1,2,3,7,8-PeCDF
- PeCDF2 = 13C-2,3,4,7,8-PeCDF
- HxCDF1 = 13C-1,2,3,4,7,8-HxCDF
- HxCDF2 = 13C-1,2,3,6,7,8-HxCDF
- HxCDF3 = 13C-2,3,4,6,7,8-HxCDF
- HxCDF4 = 13C-1,2,3,7,8,9-HxCDF
- HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDF (24-169)							
580-59668-1 - RA	MWS005R-10.5_11.5	58							

### Surrogate Legend

- TCDF = 13C-2,3,7,8-TCDF

# Isotope Dilution Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	PeCDD (21-227)	HxCDD1 (21-193)	HxCDD2 (25-163)	HpCDD (26-166)	OCDD (13-199)	TCDF (22-152)	PeCDF1 (21-192)
LCS 320-111100/2-A	Lab Control Sample	59	53	53	66	57	56	59	56

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	PeCDF2 (13-328)	HxCDF1 (19-202)	HxCDF2 (21-159)	HxCDF3 (22-176)	HxCDF4 (17-205)	HpCDF1 (21-158)	HpCDF2 (20-186)
LCS 320-111100/2-A	Lab Control Sample	56	57	61	58	55	61	58

### Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD  
 PeCDD = 13C-1,2,3,7,8-PeCDD  
 HxCDD1 = 13C-1,2,3,4,7,8-HxCDD  
 HxCDD2 = 13C-1,2,3,6,7,8-HxCDD  
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD  
 OCDD = 13C-OCDD  
 TCDF = 13C-2,3,7,8-TCDF  
 PeCDF1 = 13C-1,2,3,7,8-PeCDF  
 PeCDF2 = 13C-2,3,4,7,8-PeCDF  
 HxCDF1 = 13C-1,2,3,4,7,8-HxCDF  
 HxCDF2 = 13C-1,2,3,6,7,8-HxCDF  
 HxCDF3 = 13C-2,3,4,6,7,8-HxCDF  
 HxCDF4 = 13C-1,2,3,7,8,9-HxCDF  
 HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF  
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	PeCDD (25-181)	HxCDD1 (32-141)	HxCDD2 (28-130)	HpCDD (23-140)	OCDD (17-157)	TCDF (24-169)	PeCDF1 (24-185)
MB 320-111100/1-A	Method Blank	55	50	47	61	55	52	54	52

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	PeCDF2 (21-178)	HxCDF1 (26-152)	HxCDF2 (26-123)	HxCDF3 (28-136)	HxCDF4 (29-147)	HpCDF1 (28-143)	HpCDF2 (26-138)
MB 320-111100/1-A	Method Blank	49	51	58	56	51	57	54

### Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD  
 PeCDD = 13C-1,2,3,7,8-PeCDD  
 HxCDD1 = 13C-1,2,3,4,7,8-HxCDD  
 HxCDD2 = 13C-1,2,3,6,7,8-HxCDD  
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD  
 OCDD = 13C-OCDD  
 TCDF = 13C-2,3,7,8-TCDF  
 PeCDF1 = 13C-1,2,3,7,8-PeCDF  
 PeCDF2 = 13C-2,3,4,7,8-PeCDF  
 HxCDF1 = 13C-1,2,3,4,7,8-HxCDF  
 HxCDF2 = 13C-1,2,3,6,7,8-HxCDF  
 HxCDF3 = 13C-2,3,4,6,7,8-HxCDF  
 HxCDF4 = 13C-1,2,3,7,8,9-HxCDF

TestAmerica Seattle

# Isotope Dilution Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59668-1

HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF  
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

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# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59751-1  
Client Project/Site: Parcel 15 - POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/24/2016 3:21:01 PM  
Kristine Allen, Manager of Project Management  
(253)248-4970  
[kristine.allen@testamericainc.com](mailto:kristine.allen@testamericainc.com)

Designee for  
Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
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Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

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**Job ID: 580-59751-1**

---

**Laboratory: TestAmerica Seattle**

## Narrative

---

### Job Narrative 580-59751-1

#### Receipt

The samples were received on 5/20/2016 2:55 PM; the samples arrived in good condition, properly preserved, and on ice. The temperature of the cooler at receipt was 20.9° C. The temperature is considered acceptable as the requested analysis does not require thermal preservation.

#### Geotechnical

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

## Qualifiers

### Geotechnical

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD001A-0\_10**

**Lab Sample ID: 580-59751-1**

Date Collected: 05/18/16 12:40

Matrix: Solid

Date Received: 05/20/16 14:55

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	1.2				%			05/25/16 11:23	1
Medium Sand	4.1				%			05/25/16 11:23	1
Fine Sand	50.0				%			05/25/16 11:23	1
Silt	26.7				%			05/25/16 11:23	1
Clay	18.0				%			05/25/16 11:23	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD001A-40\_50**

**Lab Sample ID: 580-59751-2**

Date Collected: 05/18/16 12:45

Matrix: Solid

Date Received: 05/20/16 14:55

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	0.0				%			05/25/16 11:23	1
Medium Sand	0.4				%			05/25/16 11:23	1
Fine Sand	16.6				%			05/25/16 11:23	1
Silt	73.0				%			05/25/16 11:23	1
Clay	10.1				%			05/25/16 11:23	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD001B-0\_10**

**Lab Sample ID: 580-59751-3**

Date Collected: 05/18/16 12:50

Matrix: Solid

Date Received: 05/20/16 14:55

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	0.0				%			05/25/16 11:23	1
Medium Sand	1.2				%			05/25/16 11:23	1
Fine Sand	61.0				%			05/25/16 11:23	1
Silt	32.6				%			05/25/16 11:23	1
Clay	5.1				%			05/25/16 11:23	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD004A-0\_10**

**Lab Sample ID: 580-59751-4**

Date Collected: 05/18/16 14:10

Matrix: Solid

Date Received: 05/20/16 14:55

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	0.2				%			05/25/16 11:23	1
Medium Sand	1.2				%			05/25/16 11:23	1
Fine Sand	12.1				%			05/25/16 11:23	1
Silt	71.9				%			05/25/16 11:23	1
Clay	14.6				%			05/25/16 11:23	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD004A-40\_50**

**Lab Sample ID: 580-59751-5**

Date Collected: 05/18/16 14:20

Matrix: Solid

Date Received: 05/20/16 14:55

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	0.1				%			05/25/16 11:23	1
Medium Sand	1.5				%			05/25/16 11:23	1
Fine Sand	15.1				%			05/25/16 11:23	1
Silt	66.2				%			05/25/16 11:23	1
Clay	17.1				%			05/25/16 11:23	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD004B-0\_10**

**Lab Sample ID: 580-59751-6**

Date Collected: 05/18/16 14:30

Matrix: Solid

Date Received: 05/20/16 14:55

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	1.1				%			05/25/16 11:23	1
Medium Sand	1.7				%			05/25/16 11:23	1
Fine Sand	28.6				%			05/25/16 11:23	1
Silt	60.1				%			05/25/16 11:23	1
Clay	8.6				%			05/25/16 11:23	1





# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD004B-40\_50**

**Lab Sample ID: 580-59751-7**

**Date Collected: 05/18/16 14:40**

**Matrix: Solid**

**Date Received: 05/20/16 14:55**

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	0.0				%			05/25/16 11:23	1
Medium Sand	0.5				%			05/25/16 11:23	1
Fine Sand	4.8				%			05/25/16 11:23	1
Silt	74.3				%			05/25/16 11:23	1
Clay	20.3				%			05/25/16 11:23	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD003A-0\_10**

**Lab Sample ID: 580-59751-8**

**Date Collected: 05/20/16 12:15**

**Matrix: Solid**

**Date Received: 05/20/16 14:55**

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	0.1				%			05/25/16 11:23	1
Medium Sand	0.5				%			05/25/16 11:23	1
Fine Sand	44.7				%			05/25/16 11:23	1
Silt	44.9				%			05/25/16 11:23	1
Clay	9.8				%			05/25/16 11:23	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD003B-0\_10**

**Lab Sample ID: 580-59751-9**

Date Collected: 05/20/16 12:05

Matrix: Solid

Date Received: 05/20/16 14:55

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	0.1				%			05/25/16 11:23	1
Medium Sand	2.0				%			05/25/16 11:23	1
Fine Sand	62.1				%			05/25/16 11:23	1
Silt	29.3				%			05/25/16 11:23	1
Clay	6.6				%			05/25/16 11:23	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD003A-40\_50**

**Lab Sample ID: 580-59751-10**

Date Collected: 05/20/16 12:20

Matrix: Solid

Date Received: 05/20/16 14:55

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	0.1				%			05/25/16 11:23	1
Medium Sand	1.1				%			05/25/16 11:23	1
Fine Sand	23.3				%			05/25/16 11:23	1
Silt	63.5				%			05/25/16 11:23	1
Clay	12.1				%			05/25/16 11:23	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD003B-40\_50**

**Lab Sample ID: 580-59751-11**

**Date Collected: 05/20/16 12:10**

**Matrix: Solid**

**Date Received: 05/20/16 14:55**

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	0.1				%			05/25/16 11:23	1
Medium Sand	0.6				%			05/25/16 11:23	1
Fine Sand	14.4				%			05/25/16 11:23	1
Silt	68.2				%			05/25/16 11:23	1
Clay	16.7				%			05/25/16 11:23	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD002B-0\_10**

**Lab Sample ID: 580-59751-12**

Date Collected: 05/20/16 10:20

Matrix: Solid

Date Received: 05/20/16 14:55

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	0.2				%			05/25/16 11:23	1
Medium Sand	2.8				%			05/25/16 11:23	1
Fine Sand	79.5				%			05/25/16 11:23	1
Silt	6.7				%			05/25/16 11:23	1
Clay	10.8				%			05/25/16 11:23	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD002A-0\_10**

**Lab Sample ID: 580-59751-13**

**Date Collected: 05/20/16 09:45**

**Matrix: Solid**

**Date Received: 05/20/16 14:55**

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.8				%			05/25/16 11:23	1
Coarse Sand	1.7				%			05/25/16 11:23	1
Medium Sand	1.9				%			05/25/16 11:23	1
Fine Sand	56.8				%			05/25/16 11:23	1
Silt	32.3				%			05/25/16 11:23	1
Clay	6.5				%			05/25/16 11:23	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD002B-40\_50**

**Lab Sample ID: 580-59751-14**

**Date Collected: 05/20/16 10:30**

**Matrix: Solid**

**Date Received: 05/20/16 14:55**

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.1				%			05/25/16 11:23	1
Coarse Sand	0.2				%			05/25/16 11:23	1
Medium Sand	6.2				%			05/25/16 11:23	1
Fine Sand	63.7				%			05/25/16 11:23	1
Silt	25.5				%			05/25/16 11:23	1
Clay	4.3				%			05/25/16 11:23	1





# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD002A-40\_50**

**Lab Sample ID: 580-59751-15**

Date Collected: 05/20/16 09:50

Matrix: Solid

Date Received: 05/20/16 14:55

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 11:23	1
Coarse Sand	0.1				%			05/25/16 11:23	1
Medium Sand	0.5				%			05/25/16 11:23	1
Fine Sand	68.8				%			05/25/16 11:23	1
Silt	26.1				%			05/25/16 11:23	1
Clay	4.5				%			05/25/16 11:23	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD001B-40\_50**

**Lab Sample ID: 580-59751-16**

**Date Collected: 05/20/16 11:30**

**Matrix: Solid**

**Date Received: 05/20/16 14:55**

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.5				%			05/25/16 11:23	1
Coarse Sand	0.7				%			05/25/16 11:23	1
Medium Sand	3.8				%			05/25/16 11:23	1
Fine Sand	38.5				%			05/25/16 11:23	1
Silt	46.2				%			05/25/16 11:23	1
Clay	10.3				%			05/25/16 11:23	1



# QC Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

## Method: D422 - Grain Size

Lab Sample ID: 580-59751-1 DU  
 Matrix: Solid  
 Analysis Batch: 218048

Client Sample ID: WCTSD001A-0\_10  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Gravel	0.0		0.0		%		NC	20
Coarse Sand	1.2		2.1	F3	%		55	20
Medium Sand	4.1		5.3	F3	%		26	20
Fine Sand	50.0		46.0		%		8	20
Silt	26.7		30.3		%		13	20
Clay	18.0		16.3		%		10	20



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD001A-0\_10**

Date Collected: 05/18/16 12:40

Date Received: 05/20/16 14:55

**Lab Sample ID: 580-59751-1**

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD001A-40\_50**

Date Collected: 05/18/16 12:45

Date Received: 05/20/16 14:55

**Lab Sample ID: 580-59751-2**

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD001B-0\_10**

Date Collected: 05/18/16 12:50

Date Received: 05/20/16 14:55

**Lab Sample ID: 580-59751-3**

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD004A-0\_10**

Date Collected: 05/18/16 14:10

Date Received: 05/20/16 14:55

**Lab Sample ID: 580-59751-4**

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD004A-40\_50**

Date Collected: 05/18/16 14:20

Date Received: 05/20/16 14:55

**Lab Sample ID: 580-59751-5**

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD004B-0\_10**

Date Collected: 05/18/16 14:30

Date Received: 05/20/16 14:55

**Lab Sample ID: 580-59751-6**

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD004B-40\_50**

**Lab Sample ID: 580-59751-7**

Date Collected: 05/18/16 14:40

Matrix: Solid

Date Received: 05/20/16 14:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD003A-0\_10**

**Lab Sample ID: 580-59751-8**

Date Collected: 05/20/16 12:15

Matrix: Solid

Date Received: 05/20/16 14:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD003B-0\_10**

**Lab Sample ID: 580-59751-9**

Date Collected: 05/20/16 12:05

Matrix: Solid

Date Received: 05/20/16 14:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD003A-40\_50**

**Lab Sample ID: 580-59751-10**

Date Collected: 05/20/16 12:20

Matrix: Solid

Date Received: 05/20/16 14:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD003B-40\_50**

**Lab Sample ID: 580-59751-11**

Date Collected: 05/20/16 12:10

Matrix: Solid

Date Received: 05/20/16 14:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD002B-0\_10**

**Lab Sample ID: 580-59751-12**

Date Collected: 05/20/16 10:20

Matrix: Solid

Date Received: 05/20/16 14:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

**Client Sample ID: WCTSD002A-0\_10**

**Lab Sample ID: 580-59751-13**

Date Collected: 05/20/16 09:45

Matrix: Solid

Date Received: 05/20/16 14:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD002B-40\_50**

**Lab Sample ID: 580-59751-14**

Date Collected: 05/20/16 10:30

Matrix: Solid

Date Received: 05/20/16 14:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD002A-40\_50**

**Lab Sample ID: 580-59751-15**

Date Collected: 05/20/16 09:50

Matrix: Solid

Date Received: 05/20/16 14:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: WCTSD001B-40\_50**

**Lab Sample ID: 580-59751-16**

Date Collected: 05/20/16 11:30

Matrix: Solid

Date Received: 05/20/16 14:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

## Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

## Laboratory: TestAmerica Seattle

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59751-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59751-1	WCTSD001A-0_10	Solid	05/18/16 12:40	05/20/16 14:55
580-59751-2	WCTSD001A-40_50	Solid	05/18/16 12:45	05/20/16 14:55
580-59751-3	WCTSD001B-0_10	Solid	05/18/16 12:50	05/20/16 14:55
580-59751-4	WCTSD004A-0_10	Solid	05/18/16 14:10	05/20/16 14:55
580-59751-5	WCTSD004A-40_50	Solid	05/18/16 14:20	05/20/16 14:55
580-59751-6	WCTSD004B-0_10	Solid	05/18/16 14:30	05/20/16 14:55
580-59751-7	WCTSD004B-40_50	Solid	05/18/16 14:40	05/20/16 14:55
580-59751-8	WCTSD003A-0_10	Solid	05/20/16 12:15	05/20/16 14:55
580-59751-9	WCTSD003B-0_10	Solid	05/20/16 12:05	05/20/16 14:55
580-59751-10	WCTSD003A-40_50	Solid	05/20/16 12:20	05/20/16 14:55
580-59751-11	WCTSD003B-40_50	Solid	05/20/16 12:10	05/20/16 14:55
580-59751-12	WCTSD002B-0_10	Solid	05/20/16 10:20	05/20/16 14:55
580-59751-13	WCTSD002A-0_10	Solid	05/20/16 09:45	05/20/16 14:55
580-59751-14	WCTSD002B-40_50	Solid	05/20/16 10:30	05/20/16 14:55
580-59751-15	WCTSD002A-40_50	Solid	05/20/16 09:50	05/20/16 14:55
580-59751-16	WCTSD001B-40_50	Solid	05/20/16 11:30	05/20/16 14:55





66 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

# Chain of Custody Record

Loc: 580  
**59751**

Field Sampler(s):  
**GSI**

<b>Client Contact</b>		<b>For Lab Use Only:</b>				<b>Laboratory</b>										<b>Lab PM</b>			
Project Name: Parcel 15 - POT		SDG: _____				Brooks Applied Labs					TestAmerica					Brooks- Ben Wozniak- 206-753-6158			
Project # or PO #: 603.002.010		Custody Seals Intact? <input type="checkbox"/> Yes <input type="checkbox"/> No				<b>Analysis Requested</b>											TestAmerica - Christabel Escarez- 253.248.4975		
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No				Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans		Sulfide	Grain Size
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp : _____ °C															Sample Specific Notes:		
Report to email: e.hughes@gswi.com, cryals@gswi.com		Therm ID No.: _____ Therm Exp. _____																	
Analysis Turnaround Time:																			
<input type="checkbox"/> 21 days (STD) <input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *		See Contract																	

Sample Identification	Sample Date	Sample Time	Sample Type (G=Comp, G=Grab)	Matrix	Total # of Cont.	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)**	Sample Specific Notes:
NCTSD001A-0-10	5/16/16	1240	G	8d	1														X	
NCTSD001A-40-50		1245																		
NCTSD001B-0-10		1250																		
NCTSD004A-0-10		1410																		
NCTSD004A-40-50		1420																		
NCTSD004B-0-10		1430																		
NCTSD004B-40-50		1440																		
NCTSD003A-0-10	5/24/16	1215	G	8d	1														X	
NCTSD003B-0-10		1205																		
NCTSD003A-40-50		1220																		
NCTSD003B-40-50		1210																		
NCTSD002B-0-10		1020																		
NCTSD002A-0-10		945																		



<b>Possible Hazard Identification:</b>		<b>Sample Disposal</b> (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)	
Are samples hazardous? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for	
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic			
If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.			
Received by: <i>B. Hall SCA-TA</i>	Date/Time: 5-20-16 1455	Relinquished by: <i>[Signature]</i>	Date/Time: 5/20/16 1455
Received by:	Date/Time:	Relinquished by:	Date/Time:
Received in Laboratory by:	Date/Time:	Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input checked="" type="checkbox"/> Other	Tracking #:

**Special Instructions/QC Requirements**  
 \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.  
 \*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.  
 \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

TBR Cooler Cor 20.9 Unc 20  
 Cooler Desc 6/B @ Lab  
 Wet/Packs Packing 6/20/16  
 C/S 02 W/O



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

# Chain of Custody Record

Field Sampler(s):

GSI

<b>Client Contact</b>		<b>For Lab Use Only:</b>				<b>Laboratory</b>										<b>Lab PM</b>			
Project Name: Parcel 15 - POT		SDG: _____				Brooks Applied Labs					TestAmerica					Brooks- Ben Wozniak- 206-753-6158			
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No				<b>Analysis Requested</b>													
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No				Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																	
Report to email: eohughes@gslws.com, cryals@gslws.com		Therm ID No.: _____ Therm Exp. _____																	
Analysis Turnaround Time:																			
<input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days *																			
<input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *		<i>see contract</i>																	

Sample Identification	Sample Date	Sample Time	Sample Type (G=Comp, G=Grab)	Matrix	Total # of Cont.	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***	Sample Specific Notes:	
WCT SD 002B - 40-50	5/20/16	1030	G	sed	1																
WCT SD 002A - 40-50	↓	950	↓	↓	↓																
WCT SD 001B - 40-50	↓	1130	↓	↓	↓																

TBA Cooler Cor 20.9 Unc 20.9  
 Cooler Disc 1/2 G/B @ Lab  
 Wet/Packs Packing bubble  
 C18 do w/o

<b>Possible Hazard Identification:</b>		<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>	
Are samples hazardous? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for	
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic			
If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.			

Received by: <i>B. Hall SEA TA</i>	Date/Time: <i>5-20-16 1455</i>	Relinquished by: <i>Stew</i>	Date/Time: <i>5/20/16 1455</i>
Received by:	Date/Time:	Relinquished by:	Date/Time:
Received in Laboratory by:	Date/Time:	Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input checked="" type="checkbox"/> USPS <input type="checkbox"/> Other	Tracking #:

**Special Instructions/QC Requirements**  
 \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.  
 \*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.  
 \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59751-1

**Login Number: 59751**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

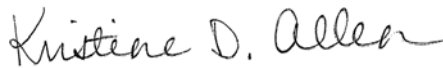
TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59752-1  
Client Project/Site: Parcel 15 - POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/24/2016 3:17:28 PM  
Kristine Allen, Manager of Project Management  
(253)248-4970  
[kristine.allen@testamericainc.com](mailto:kristine.allen@testamericainc.com)

Designee for  
Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Job ID: 580-59752-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-59752-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 5/21/2016 2:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 8.4° C. Samples were received outside of the required temperature criteria.

#### GC/MS Semi VOA

Method(s) 8270D SIM: The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 580-218164 recovered outside control limits for the following analyte: Pentachlorophenol. The individual recoveries met the acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

Method(s) 9034: The following samples were analyzed outside of holding time: MWS007-9\_10 (580-59752-1), MWS009-11\_12 (580-59752-2) and MWS012-11.5\_12.5 (580-59752-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Geotechnical

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Geotechnical

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: MWS007-9\_10**

**Lab Sample ID: 580-59752-1**

Date Collected: 05/11/16 09:40

Matrix: Solid

Date Received: 05/21/16 14:45

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>550</b>	<b>J</b>	2000	44	mg/Kg			05/25/16 08:43	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>84.6</b>		0.1	0.1	%			05/23/16 15:49	1
<b>Percent Moisture</b>	<b>15.4</b>		0.1	0.1	%			05/23/16 15:49	1

### Method: D422 - Grain Size

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>0.0</b>				%			05/25/16 11:23	1
<b>Coarse Sand</b>	<b>0.0</b>				%			05/25/16 11:23	1
<b>Medium Sand</b>	<b>13.6</b>				%			05/25/16 11:23	1
<b>Fine Sand</b>	<b>73.2</b>				%			05/25/16 11:23	1
<b>Silt</b>	<b>10.4</b>				%			05/25/16 11:23	1
<b>Clay</b>	<b>2.7</b>				%			05/25/16 11:23	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: MWS007-9\_10**

**Lab Sample ID: 580-59752-1**

**Date Collected: 05/11/16 09:40**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

**Percent Solids: 84.6**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND	H	5.9	2.8	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: MWS009-11\_12**

**Lab Sample ID: 580-59752-2**

Date Collected: 05/11/16 14:35

Matrix: Solid

Date Received: 05/21/16 14:45

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>1100</b>	<b>J</b>	2000	44	mg/Kg			05/25/16 08:48	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>78.5</b>		0.1	0.1	%			05/23/16 15:49	1
<b>Percent Moisture</b>	<b>21.5</b>		0.1	0.1	%			05/23/16 15:49	1

### Method: D422 - Grain Size

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>0.0</b>				%			05/25/16 11:23	1
<b>Coarse Sand</b>	<b>0.0</b>				%			05/25/16 11:23	1
<b>Medium Sand</b>	<b>0.1</b>				%			05/25/16 11:23	1
<b>Fine Sand</b>	<b>49.9</b>				%			05/25/16 11:23	1
<b>Silt</b>	<b>46.3</b>				%			05/25/16 11:23	1
<b>Clay</b>	<b>3.7</b>				%			05/25/16 11:23	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: MWS009-11\_12**

**Lab Sample ID: 580-59752-2**

**Date Collected: 05/11/16 14:35**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

**Percent Solids: 78.5**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND	H	6.4	3.1	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: MWS012-11.5\_12.5**

**Lab Sample ID: 580-59752-3**

**Date Collected: 05/12/16 10:00**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>580</b>	<b>J</b>	2000	44	mg/Kg			05/25/16 09:11	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>80.9</b>		0.1	0.1	%			05/23/16 15:49	1
<b>Percent Moisture</b>	<b>19.1</b>		0.1	0.1	%			05/23/16 15:49	1

**Method: D422 - Grain Size**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>0.0</b>				%			05/25/16 12:19	1
<b>Coarse Sand</b>	<b>0.0</b>				%			05/25/16 12:19	1
<b>Medium Sand</b>	<b>0.3</b>				%			05/25/16 12:19	1
<b>Fine Sand</b>	<b>81.4</b>				%			05/25/16 12:19	1
<b>Silt</b>	<b>18.4</b>				%			05/25/16 12:19	1
<b>Clay</b>	<b>0.0</b>				%			05/25/16 12:19	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: MWS012-11.5\_12.5**

**Lab Sample ID: 580-59752-3**

**Date Collected: 05/12/16 10:00**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

**Percent Solids: 80.9**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND	H	6.2	3.0	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: TBS006-12\_14**

**Lab Sample ID: 580-59752-4**

**Date Collected: 05/12/16 13:25**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	5700		2000	44	mg/Kg			05/25/16 09:16	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: TBS004-12\_13**

**Lab Sample ID: 580-59752-5**

**Date Collected: 05/12/16 16:40**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	4100		2000	44	mg/Kg			05/25/16 09:22	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: TBS008-13\_14**

**Lab Sample ID: 580-59752-6**

**Date Collected: 05/13/16 09:15**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	11000		2000	44	mg/Kg			05/25/16 09:28	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: TBS009-7.4\_8.4**

**Lab Sample ID: 580-59752-7**

Date Collected: 05/13/16 12:15

Matrix: Solid

Date Received: 05/21/16 14:45

### General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	9.12				SU			05/24/16 17:57	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	2100		2000	44	mg/Kg			05/25/16 09:41	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.2		0.1	0.1	%			05/23/16 15:49	1
Percent Moisture	11.8		0.1	0.1	%			05/23/16 15:49	1

### Method: D422 - Grain Size

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 12:19	1
Coarse Sand	0.0				%			05/25/16 12:19	1
Medium Sand	4.9				%			05/25/16 12:19	1
Fine Sand	80.4				%			05/25/16 12:19	1
Silt	11.3				%			05/25/16 12:19	1
Clay	3.2				%			05/25/16 12:19	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: TBS009-7.4\_8.4**

**Lab Sample ID: 580-59752-7**

**Date Collected: 05/13/16 12:15**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

**Percent Solids: 88.2**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.015	J*	0.019	0.0048	mg/Kg	☼	05/26/16 12:37	05/31/16 13:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	103		28 - 143				05/26/16 12:37	05/31/16 13:01	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: TBS009-8.8\_9.8**

**Lab Sample ID: 580-59752-8**

Date Collected: 05/13/16 12:20

Matrix: Solid

Date Received: 05/21/16 14:45

### General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.80				SU			05/24/16 17:59	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	42000		2000	44	mg/Kg			05/25/16 09:46	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	54.7		0.1	0.1	%			05/23/16 15:49	1
Percent Moisture	45.3		0.1	0.1	%			05/23/16 15:49	1

### Method: D422 - Grain Size

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	4.8				%			05/25/16 12:19	1
Coarse Sand	4.4				%			05/25/16 12:19	1
Medium Sand	11.3				%			05/25/16 12:19	1
Fine Sand	38.4				%			05/25/16 12:19	1
Silt	32.4				%			05/25/16 12:19	1
Clay	8.7				%			05/25/16 12:19	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: TBS009-8.8\_9.8**

**Lab Sample ID: 580-59752-8**

**Date Collected: 05/13/16 12:20**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

**Percent Solids: 54.7**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.027	J *	0.033	0.0082	mg/Kg	☼	05/26/16 12:37	05/31/16 14:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	105		28 - 143				05/26/16 12:37	05/31/16 14:09	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: TBS009-12\_13**

**Lab Sample ID: 580-59752-9**

Date Collected: 05/13/16 12:25

Matrix: Solid

Date Received: 05/21/16 14:45

### General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.61				SU			05/24/16 18:03	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	20000		2000	44	mg/Kg			05/25/16 09:52	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	72.4		0.1	0.1	%			05/23/16 15:49	1
Percent Moisture	27.6		0.1	0.1	%			05/23/16 15:49	1

### Method: D422 - Grain Size

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.5				%			05/25/16 12:19	1
Coarse Sand	2.1				%			05/25/16 12:19	1
Medium Sand	56.7				%			05/25/16 12:19	1
Fine Sand	19.8				%			05/25/16 12:19	1
Silt	15.0				%			05/25/16 12:19	1
Clay	5.9				%			05/25/16 12:19	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: TBS009-12\_13**

**Lab Sample ID: 580-59752-9**

**Date Collected: 05/13/16 12:25**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

**Percent Solids: 72.4**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.016	J*	0.023	0.0057	mg/Kg	☼	05/26/16 12:37	05/31/16 14:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	106		28 - 143				05/26/16 12:37	05/31/16 14:32	1



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-218164/1-A**

**Matrix: Solid**

**Analysis Batch: 218387**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 218164**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.020	0.0050	mg/Kg		05/26/16 12:37	05/31/16 10:46	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	73		28 - 143				05/26/16 12:37	05/31/16 10:46	1

**Lab Sample ID: LCS 580-218164/2-A**

**Matrix: Solid**

**Analysis Batch: 218387**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 218164**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	2.00	0.927		mg/Kg		46	45 - 117
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4,6-Tribromophenol	95		28 - 143				

**Lab Sample ID: LCSD 580-218164/3-A**

**Matrix: Solid**

**Analysis Batch: 218387**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 218164**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	2.00	1.35	*	mg/Kg		67	45 - 117	37	23
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	102		28 - 143						

**Lab Sample ID: 580-59752-7 MS**

**Matrix: Solid**

**Analysis Batch: 218387**

**Client Sample ID: TBS009-7.4\_8.4**

**Prep Type: Total/NA**

**Prep Batch: 218164**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	0.015	J*	2.01	1.97		mg/Kg	☼	97	45 - 117
Surrogate	MS %Recovery	MS Qualifier	Limits						
2,4,6-Tribromophenol	100		28 - 143						

**Lab Sample ID: 580-59752-7 MSD**

**Matrix: Solid**

**Analysis Batch: 218387**

**Client Sample ID: TBS009-7.4\_8.4**

**Prep Type: Total/NA**

**Prep Batch: 218164**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	0.015	J*	1.98	2.04		mg/Kg	☼	102	45 - 117	3	68
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
2,4,6-Tribromophenol	107		28 - 143								

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

## Method: 9034 - Sulfide, Acid Soluble and Insoluble (Titrimetric)

**Lab Sample ID:** MB 280-328007/6-A  
**Matrix:** Solid  
**Analysis Batch:** 328013

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA  
**Prep Batch:** 328007

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		5.0	2.4	mg/Kg		06/01/16 16:38	06/01/16 18:17	1

**Lab Sample ID:** LCS 280-328007/5-A  
**Matrix:** Solid  
**Analysis Batch:** 328013

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 328007

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	87.6	61.6		mg/Kg		70	38 - 104

**Lab Sample ID:** 580-59752-1 MS  
**Matrix:** Solid  
**Analysis Batch:** 328013

**Client Sample ID:** MWS007-9\_10  
**Prep Type:** Total/NA  
**Prep Batch:** 328007

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND	H	103	70.9		mg/Kg	☼	68	38 - 104

**Lab Sample ID:** 580-59752-1 MSD  
**Matrix:** Solid  
**Analysis Batch:** 328013

**Client Sample ID:** MWS007-9\_10  
**Prep Type:** Total/NA  
**Prep Batch:** 328007

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND	H	104	70.9		mg/Kg	☼	68	38 - 104	0	35

## Method: 9060\_PSEP - TOC (Puget Sound)

**Lab Sample ID:** MB 580-218043/5  
**Matrix:** Solid  
**Analysis Batch:** 218043

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		2000	44	mg/Kg			05/25/16 08:35	1

**Lab Sample ID:** LCS 580-218043/6  
**Matrix:** Solid  
**Analysis Batch:** 218043

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	4620	4660		mg/Kg		101	49 - 151

**Lab Sample ID:** LCSD 580-218043/7  
**Matrix:** Solid  
**Analysis Batch:** 218043

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	4620	5030		mg/Kg		109	49 - 151	8	35

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

## Method: 9060\_PSEP - TOC (Puget Sound) (Continued)

**Lab Sample ID: 580-59752-2 MS**

**Matrix: Solid**

**Analysis Batch: 218043**

**Client Sample ID: MWS009-11\_12**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	1100	J	120000	107000		mg/Kg		88	50 - 140

**Lab Sample ID: 580-59752-2 MSD**

**Matrix: Solid**

**Analysis Batch: 218043**

**Client Sample ID: MWS009-11\_12**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	1100	J	120000	117000		mg/Kg		96	50 - 140	8	35

**Lab Sample ID: 580-59752-2 DU**

**Matrix: Solid**

**Analysis Batch: 218043**

**Client Sample ID: MWS009-11\_12**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - Duplicates	1100	J	1220	J	mg/Kg		10	50

**Lab Sample ID: 580-59752-2 DU**

**Matrix: Solid**

**Analysis Batch: 218043**

**Client Sample ID: MWS009-11\_12**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - Duplicates	1100	J	1130	J	mg/Kg		3	50

## Method: D422 - Grain Size

**Lab Sample ID: 580-59752-3 DU**

**Matrix: Solid**

**Analysis Batch: 218054**

**Client Sample ID: MWS012-11.5\_12.5**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Gravel	0.0		0.0		%		NC	20
Coarse Sand	0.0		0.0		%		NC	20
Medium Sand	0.3		0.4	F3	%		29	20
Fine Sand	81.4		78.8		%		3	20
Silt	18.4		20.8		%		12	20
Clay	0.0		0.0		%		NC	20

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: MWS007-9\_10**

**Lab Sample ID: 580-59752-1**

Date Collected: 05/11/16 09:40

Matrix: Solid

Date Received: 05/21/16 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 08:43	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217897	05/23/16 15:49	J1J	TAL SEA
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: MWS007-9\_10**

**Lab Sample ID: 580-59752-1**

Date Collected: 05/11/16 09:40

Matrix: Solid

Date Received: 05/21/16 14:45

Percent Solids: 84.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: MWS009-11\_12**

**Lab Sample ID: 580-59752-2**

Date Collected: 05/11/16 14:35

Matrix: Solid

Date Received: 05/21/16 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 08:48	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217897	05/23/16 15:49	J1J	TAL SEA
Total/NA	Analysis	D422		1	218048	05/25/16 11:23	JSM	TAL SEA

**Client Sample ID: MWS009-11\_12**

**Lab Sample ID: 580-59752-2**

Date Collected: 05/11/16 14:35

Matrix: Solid

Date Received: 05/21/16 14:45

Percent Solids: 78.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: MWS012-11.5\_12.5**

**Lab Sample ID: 580-59752-3**

Date Collected: 05/12/16 10:00

Matrix: Solid

Date Received: 05/21/16 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 09:11	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217897	05/23/16 15:49	J1J	TAL SEA
Total/NA	Analysis	D422		1	218054	05/25/16 12:19	JSM	TAL SEA

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: MWS012-11.5\_12.5**

**Lab Sample ID: 580-59752-3**

Date Collected: 05/12/16 10:00

Matrix: Solid

Date Received: 05/21/16 14:45

Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: TBS006-12\_14**

**Lab Sample ID: 580-59752-4**

Date Collected: 05/12/16 13:25

Matrix: Solid

Date Received: 05/21/16 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 09:16	SPP	TAL SEA

**Client Sample ID: TBS004-12\_13**

**Lab Sample ID: 580-59752-5**

Date Collected: 05/12/16 16:40

Matrix: Solid

Date Received: 05/21/16 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 09:22	SPP	TAL SEA

**Client Sample ID: TBS008-13\_14**

**Lab Sample ID: 580-59752-6**

Date Collected: 05/13/16 09:15

Matrix: Solid

Date Received: 05/21/16 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 09:28	SPP	TAL SEA

**Client Sample ID: TBS009-7.4\_8.4**

**Lab Sample ID: 580-59752-7**

Date Collected: 05/13/16 12:15

Matrix: Solid

Date Received: 05/21/16 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218005	05/24/16 17:57	Z1T	TAL SEA
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 09:41	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217897	05/23/16 15:49	J1J	TAL SEA
Total/NA	Analysis	D422		1	218054	05/25/16 12:19	JSM	TAL SEA

**Client Sample ID: TBS009-7.4\_8.4**

**Lab Sample ID: 580-59752-7**

Date Collected: 05/13/16 12:15

Matrix: Solid

Date Received: 05/21/16 14:45

Percent Solids: 88.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			218164	05/26/16 12:37	CJZ	TAL SEA
Total/NA	Analysis	8270D SIM		1	218387	05/31/16 13:01	D1R	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

**Client Sample ID: TBS009-8.8\_9.8**

**Lab Sample ID: 580-59752-8**

**Date Collected: 05/13/16 12:20**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218005	05/24/16 17:59	Z1T	TAL SEA
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 09:46	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217897	05/23/16 15:49	J1J	TAL SEA
Total/NA	Analysis	D422		1	218054	05/25/16 12:19	JSM	TAL SEA

**Client Sample ID: TBS009-8.8\_9.8**

**Lab Sample ID: 580-59752-8**

**Date Collected: 05/13/16 12:20**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

**Percent Solids: 54.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			218164	05/26/16 12:37	CJZ	TAL SEA
Total/NA	Analysis	8270D SIM		1	218387	05/31/16 14:09	D1R	TAL SEA

**Client Sample ID: TBS009-12\_13**

**Lab Sample ID: 580-59752-9**

**Date Collected: 05/13/16 12:25**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218005	05/24/16 18:03	Z1T	TAL SEA
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 09:52	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217897	05/23/16 15:49	J1J	TAL SEA
Total/NA	Analysis	D422		1	218054	05/25/16 12:19	JSM	TAL SEA

**Client Sample ID: TBS009-12\_13**

**Lab Sample ID: 580-59752-9**

**Date Collected: 05/13/16 12:25**

**Matrix: Solid**

**Date Received: 05/21/16 14:45**

**Percent Solids: 72.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			218164	05/26/16 12:37	CJZ	TAL SEA
Total/NA	Analysis	8270D SIM		1	218387	05/31/16 14:32	D1R	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9045D		Solid	pH
9060_PSEP		Solid	Total Organic Carbon - Duplicates
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

## Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-59752-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59752-1	MWS007-9_10	Solid	05/11/16 09:40	05/21/16 14:45
580-59752-2	MWS009-11_12	Solid	05/11/16 14:35	05/21/16 14:45
580-59752-3	MWS012-11.5_12.5	Solid	05/12/16 10:00	05/21/16 14:45
580-59752-4	TBS006-12_14	Solid	05/12/16 13:25	05/21/16 14:45
580-59752-5	TBS004-12_13	Solid	05/12/16 16:40	05/21/16 14:45
580-59752-6	TBS008-13_14	Solid	05/13/16 09:15	05/21/16 14:45
580-59752-7	TBS009-7.4_8.4	Solid	05/13/16 12:15	05/21/16 14:45
580-59752-8	TBS009-8.8_9.8	Solid	05/13/16 12:20	05/21/16 14:45
580-59752-9	TBS009-12_13	Solid	05/13/16 12:25	05/21/16 14:45



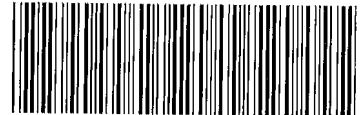
GSI

55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>												<b>Lab PM</b>		
Project Name: Parcel 15 - POT	SDG: _____	Brooks Applied Labs						TestAmerica						Brooks - Bon Wozniak - 206-753-6168		
Project # or PO #: 603.002.010	Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	Analysis Requested														
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)**	
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C															
Report to email: echughes@gslws.com, cryals@gslws.com	Therm ID No.: _____ Therm Exp. _____															TestAmerica - Christabel Escarez - 253.248.4975
Analysis Turnaround Time: <input type="checkbox"/> 21 days (STD)																Sample Specific Notes:
<input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *	<i>Spec Contract</i>															

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)**	Sample Specific Notes:
MWS007-9-10	5/11/16	9:10	G	S	1	X	X	X	X	X	X	X	X	X			X	X		
MWS009-11-12	↓	1435	↓	↓	↓	X	X	X	X	X	X	X	X	X			X	X		
MWS012-11.5-12.5	5/12/16	1005	↓	↓	↓	X	X	X	X	X	X	X	X	X			X	X		
TBS006-13-14	↓	1325	↓	↓	↓	X	X	X	X	X	X	X	X	X						no liner present - only soil
TBS004-12-13	↓	1640	↓	↓	↓	X	X	X	X	X	X	X	X	X						
TBS008-13-14	5/13/16	9:15	G	S	1	X	X	X	X	X	X	X	X	X						
TBS009-7.4-8.4	↓	1215	↓	↓	↓	X	X	X	X	X	X	X	X	X						
TBS009-8.8-9.8	5/13/16	1220	G	S	1	X	X	X	X	X	X	X	X	X						
TBS009-12-13	↓	1225	↓	↓	↓	X	X	X	X	X	X	X	X	X						



580-59752 Chain of Custody

TB Cooler IR2Cor 8.4 Unc 8.2  
Cooler Disc 6.5 Blue 6.6 @ Lab 14/15  
Wet/Packs Packing Bubble  
w/c s

**Possible Hazard Identification:**  
Are samples hazardous?  Yes  No  
If yes, select hazard(s):  Usted  Ignitable  Corrosive  Reactive  Toxic  
If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

Sample disposal (if any) may be added if samples are retained longer than 90 days per client request, samples are returned to client, or classified as hazardous.  
 Return to Client  Disposal by Lab  Archive for 1 yr + contract GSI

Received by: *Mark M. Dandy* Date/Time: 5/13/16 1525  
Received by: *[Signature]* Date/Time: 5/19/16 1330  
Received in Laboratory by: *Gen Waller* Date/Time: 5/18/16 17:05

Relinquished by: *Renee Fowler, GSI* Date/Time: 5/13/16 1525  
Relinquished by: *[Signature]* Date/Time: 5/19/16 9:00  
Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #:

**Special Instructions/QC Requirements**  
\* Brooks analytical to homogenize sediment anoxically in a glove box and provide allquotes for analysis at Brooks and Test America.  
\*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.  
\*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.  
Please contact Cindy Ryals at 971-200-8531 with any questions.

*see SAP tables BWH/MSB/MS*  
*11-5-11-4*

# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b> Shipping/Receiving Company: TestAmerica Laboratories, Inc. Address: 4955 Yarrow Street, Arvada, CO, 80002 Phone: 303-736-0100(Tel) 303-431-7171(Fax) Email: Project Name: Parcel 15 - POT Site:		Sampler: Escarez, Christabel C Lab P#: christabel.escarez@testamericainc.com E-Mail:		COC No: 580-38574.1 Page: 1 of 1 Job #: 580-59752-1		Carrier Tracking No(s): Analysis Requested		
Due Date Requested: 6/6/2016 TAT Requested (days): PO #: WO #: Project #: 58009703 SSOW#:		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> 9034/9030B Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)		
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Organic/Sol)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers	Special Instructions/Note:
MWS007-9_10 (580-59752-1)	5/11/16	09:40 Pacific	Solid	Solid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	
MWS009-11_12 (580-59752-2)	5/11/16	14:35 Pacific	Solid	Solid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	
MWS012-11.5_12.5 (580-59752-3)	5/12/16	10:00 Pacific	Solid	Solid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	
<b>Possible Hazard Identification</b> Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab Archive For _____ Months
Empty Kit Relinquished by:								Method of Shipment:
Relinquished by: Tom Blanks		Date: 5/23/16		Company: YA-Sea		Date/Time: 5/24/16 0855		Company: JFD
Relinquished by:		Date/Time:		Company:		Date/Time:		Company:
Relinquished by:		Date/Time:		Company:		Date/Time:		Company:
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 3.6 to 0.0 IP# transferred by DW 5/24/16		Date/Time:		Company:



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59752-1

**Login Number: 59752**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59752-1

**Login Number: 59752**

**List Number: 2**

**Creator: White, Denise E**

**List Source: TestAmerica Denver**

**List Creation: 05/24/16 02:27 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

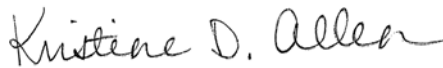
## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59757-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/24/2016 3:01:43 PM  
Kristine Allen, Manager of Project Management  
(253)248-4970  
[kristine.allen@testamericainc.com](mailto:kristine.allen@testamericainc.com)

Designee for  
Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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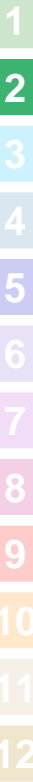
8

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

**Job ID: 580-59757-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-59757-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 5/20/2016 9:30 AM; the samples arrived in good condition, properly preserved, and on ice. The temperature of the cooler at receipt was 7.8° C.

#### Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: TBS001-11\_12 (580-59757-1), TBS003-14\_15 (580-59757-2), TBS005-17\_18 (580-59757-3), TBS002-0.5\_1.5 (580-59757-4) and TBS007-16.5\_17.5 (580-59757-5).

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Dioxin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 9034: The following samples was tested outside of holding time: TBS003-14\_15 (580-59757-2), TBS005-17\_18 (580-59757-3) and TBS007-16.5\_17.5 (580-59757-5).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Geotechnical

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Dioxin

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
H	Sample was prepped or analyzed beyond the specified holding time

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

**Client Sample ID: TBS001-11\_12**

**Lab Sample ID: 580-59757-1**

**Date Collected: 05/16/16 11:15**

**Matrix: Solid**

**Date Received: 05/20/16 09:30**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	1200	J	2000	44	mg/Kg			05/25/16 09:57	1

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# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

**Client Sample ID: TBS003-14\_15**

**Lab Sample ID: 580-59757-2**

Date Collected: 05/16/16 09:25

Matrix: Solid

Date Received: 05/20/16 09:30

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>22000</b>		2000	44	mg/Kg			05/25/16 10:03	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>65.3</b>		0.1	0.1	%			05/23/16 15:49	1
<b>Percent Moisture</b>	<b>34.7</b>		0.1	0.1	%			05/23/16 15:49	1

### Method: D422 - Grain Size

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>1.1</b>				%			05/25/16 12:19	1
<b>Coarse Sand</b>	<b>0.6</b>				%			05/25/16 12:19	1
<b>Medium Sand</b>	<b>1.5</b>				%			05/25/16 12:19	1
<b>Fine Sand</b>	<b>14.7</b>				%			05/25/16 12:19	1
<b>Silt</b>	<b>45.4</b>				%			05/25/16 12:19	1
<b>Clay</b>	<b>36.8</b>				%			05/25/16 12:19	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

**Client Sample ID: TBS003-14\_15**

**Lab Sample ID: 580-59757-2**

**Date Collected: 05/16/16 09:25**

**Matrix: Solid**

**Date Received: 05/20/16 09:30**

**Percent Solids: 65.3**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	38	H	7.6	3.7	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

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# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

**Client Sample ID: TBS005-17\_18**

**Lab Sample ID: 580-59757-3**

Date Collected: 05/17/16 11:55

Matrix: Solid

Date Received: 05/20/16 09:30

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	1700	J	2000	44	mg/Kg			05/25/16 10:09	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	74.9		0.1	0.1	%			05/23/16 15:49	1
Percent Moisture	25.1		0.1	0.1	%			05/23/16 15:49	1

### Method: D422 - Grain Size

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 12:19	1
Coarse Sand	0.0				%			05/25/16 12:19	1
Medium Sand	0.0				%			05/25/16 12:19	1
Fine Sand	53.6				%			05/25/16 12:19	1
Silt	42.7				%			05/25/16 12:19	1
Clay	3.6				%			05/25/16 12:19	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

**Client Sample ID: TBS005-17\_18**

**Lab Sample ID: 580-59757-3**

**Date Collected: 05/17/16 11:55**

**Matrix: Solid**

**Date Received: 05/20/16 09:30**

**Percent Solids: 74.9**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND	H	6.7	3.2	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

**Client Sample ID: TPS002-0.5\_1.5**

**Lab Sample ID: 580-59757-4**

Date Collected: 05/17/16 14:10

Matrix: Solid

Date Received: 05/20/16 09:30

Percent Solids: 94.3

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.014	J	0.020	0.0050	mg/Kg	☼	05/25/16 08:41	05/25/16 15:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	96		28 - 143				05/25/16 08:41	05/25/16 15:50	1

**Method: 1613B - Dioxins and Furans (HRGC/HRMS)**

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		1.1	0.043	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
1,2,3,7,8-PeCDD	0.10	J	5.3	0.058	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
1,2,3,4,7,8-HxCDD	0.20	J	5.3	0.054	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
1,2,3,6,7,8-HxCDD	0.79	J	5.3	0.052	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
1,2,3,7,8,9-HxCDD	0.40	J q	5.3	0.044	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
1,2,3,4,6,7,8-HpCDD	13	B	5.3	0.33	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
OCDD	97	B	11	0.16	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
2,3,7,8-TCDF	0.093	J	1.1	0.034	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
1,2,3,7,8-PeCDF	ND		5.3	0.048	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
2,3,4,7,8-PeCDF	ND		5.3	0.054	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
1,2,3,4,7,8-HxCDF	ND		5.3	0.057	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
1,2,3,6,7,8-HxCDF	0.13	J q	5.3	0.051	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
2,3,4,6,7,8-HxCDF	0.14	J q B	5.3	0.045	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
1,2,3,7,8,9-HxCDF	ND		5.3	0.047	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
1,2,3,4,6,7,8-HpCDF	1.9	J B	5.3	0.067	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
1,2,3,4,7,8,9-HpCDF	0.20	J	5.3	0.10	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
OCDF	4.6	J B	11	0.054	pg/g	☼	05/26/16 14:38	05/31/16 19:22	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	51		25 - 164				05/26/16 14:38	05/31/16 19:22	1
13C-1,2,3,7,8-PeCDD	48		25 - 181				05/26/16 14:38	05/31/16 19:22	1
13C-1,2,3,4,7,8-HxCDD	51		32 - 141				05/26/16 14:38	05/31/16 19:22	1
13C-1,2,3,6,7,8-HxCDD	58		28 - 130				05/26/16 14:38	05/31/16 19:22	1
13C-1,2,3,4,6,7,8-HpCDD	53		23 - 140				05/26/16 14:38	05/31/16 19:22	1
13C-OCDD	50		17 - 157				05/26/16 14:38	05/31/16 19:22	1
13C-2,3,7,8-TCDF	53		24 - 169				05/26/16 14:38	05/31/16 19:22	1
13C-1,2,3,7,8-PeCDF	50		24 - 185				05/26/16 14:38	05/31/16 19:22	1
13C-2,3,4,7,8-PeCDF	50		21 - 178				05/26/16 14:38	05/31/16 19:22	1
13C-1,2,3,4,7,8-HxCDF	54		26 - 152				05/26/16 14:38	05/31/16 19:22	1
13C-1,2,3,6,7,8-HxCDF	58		26 - 123				05/26/16 14:38	05/31/16 19:22	1
13C-2,3,4,6,7,8-HxCDF	57		28 - 136				05/26/16 14:38	05/31/16 19:22	1
13C-1,2,3,7,8,9-HxCDF	52		29 - 147				05/26/16 14:38	05/31/16 19:22	1
13C-1,2,3,4,6,7,8-HpCDF	54		28 - 143				05/26/16 14:38	05/31/16 19:22	1
13C-1,2,3,4,7,8,9-HpCDF	54		26 - 138				05/26/16 14:38	05/31/16 19:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	105		35 - 197				05/26/16 14:38	05/31/16 19:22	1

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.95				SU			05/24/16 18:08	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	710	J	2000	44	mg/Kg			05/25/16 10:15	1

TestAmerica Seattle

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

**Client Sample ID: TPS002-0.5\_1.5**

**Lab Sample ID: 580-59757-4**

**Date Collected: 05/17/16 14:10**

**Matrix: Solid**

**Date Received: 05/20/16 09:30**

**Percent Solids: 94.3**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.3		0.1	0.1	%			05/23/16 15:49	1
Percent Moisture	5.7		0.1	0.1	%			05/23/16 15:49	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

**Client Sample ID: TBS007-16.5\_17.5**

**Lab Sample ID: 580-59757-5**

Date Collected: 05/17/16 15:20

Matrix: Solid

Date Received: 05/20/16 09:30

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	1100	J	2000	44	mg/Kg			05/25/16 10:20	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	78.9		0.1	0.1	%			05/23/16 15:49	1
Percent Moisture	21.1		0.1	0.1	%			05/23/16 15:49	1

### Method: D422 - Grain Size

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			05/25/16 12:19	1
Coarse Sand	0.0				%			05/25/16 12:19	1
Medium Sand	0.2				%			05/25/16 12:19	1
Fine Sand	71.1				%			05/25/16 12:19	1
Silt	26.8				%			05/25/16 12:19	1
Clay	1.9				%			05/25/16 12:19	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

**Client Sample ID: TBS007-16.5\_17.5**

**Lab Sample ID: 580-59757-5**

**Date Collected: 05/17/16 15:20**

**Matrix: Solid**

**Date Received: 05/20/16 09:30**

**Percent Solids: 78.9**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND	H	6.3	3.0	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-218030/1-A**

**Matrix: Solid**

**Analysis Batch: 218035**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 218030**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.020	0.0050	mg/Kg		05/25/16 08:41	05/25/16 12:50	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	95		28 - 143				05/25/16 08:41	05/25/16 12:50	1

**Lab Sample ID: LCS 580-218030/2-A**

**Matrix: Solid**

**Analysis Batch: 218035**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 218030**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	2.00	1.93		mg/Kg		96	45 - 117
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4,6-Tribromophenol	102		28 - 143				

**Lab Sample ID: LCSD 580-218030/3-A**

**Matrix: Solid**

**Analysis Batch: 218035**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 218030**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	2.00	1.96		mg/Kg		98	45 - 117	2	23
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	103		28 - 143						

**Lab Sample ID: 580-59757-4 MS**

**Matrix: Solid**

**Analysis Batch: 218035**

**Client Sample ID: TPS002-0.5\_1.5**

**Prep Type: Total/NA**

**Prep Batch: 218030**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	0.014	J	1.94	1.80		mg/Kg	☼	92	45 - 117
Surrogate	MS %Recovery	MS Qualifier	Limits						
2,4,6-Tribromophenol	98		28 - 143						

**Lab Sample ID: 580-59757-4 MSD**

**Matrix: Solid**

**Analysis Batch: 218035**

**Client Sample ID: TPS002-0.5\_1.5**

**Prep Type: Total/NA**

**Prep Batch: 218030**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	0.014	J	1.97	1.94		mg/Kg	☼	98	45 - 117	7	68
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
2,4,6-Tribromophenol	97		28 - 143								

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

**Lab Sample ID: MB 320-111553/1-A**  
**Matrix: Solid**  
**Analysis Batch: 112019**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 111553**

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		1.0	0.028	pg/g		05/26/16 14:36	05/31/16 17:50	1
1,2,3,7,8-PeCDD	ND		5.0	0.036	pg/g		05/26/16 14:36	05/31/16 17:50	1
1,2,3,4,7,8-HxCDD	ND		5.0	0.022	pg/g		05/26/16 14:36	05/31/16 17:50	1
1,2,3,6,7,8-HxCDD	ND		5.0	0.022	pg/g		05/26/16 14:36	05/31/16 17:50	1
1,2,3,7,8,9-HxCDD	ND		5.0	0.018	pg/g		05/26/16 14:36	05/31/16 17:50	1
1,2,3,4,6,7,8-HpCDD	0.118	J	5.0	0.024	pg/g		05/26/16 14:36	05/31/16 17:50	1
OCDD	0.275	J q	10	0.028	pg/g		05/26/16 14:36	05/31/16 17:50	1
2,3,7,8-TCDF	ND		1.0	0.019	pg/g		05/26/16 14:36	05/31/16 17:50	1
1,2,3,7,8-PeCDF	ND		5.0	0.031	pg/g		05/26/16 14:36	05/31/16 17:50	1
2,3,4,7,8-PeCDF	ND		5.0	0.034	pg/g		05/26/16 14:36	05/31/16 17:50	1
1,2,3,4,7,8-HxCDF	ND		5.0	0.019	pg/g		05/26/16 14:36	05/31/16 17:50	1
1,2,3,6,7,8-HxCDF	ND		5.0	0.017	pg/g		05/26/16 14:36	05/31/16 17:50	1
2,3,4,6,7,8-HxCDF	0.0207	J	5.0	0.015	pg/g		05/26/16 14:36	05/31/16 17:50	1
1,2,3,7,8,9-HxCDF	ND		5.0	0.017	pg/g		05/26/16 14:36	05/31/16 17:50	1
1,2,3,4,6,7,8-HpCDF	0.0440	J q	5.0	0.022	pg/g		05/26/16 14:36	05/31/16 17:50	1
1,2,3,4,7,8,9-HpCDF	ND		5.0	0.034	pg/g		05/26/16 14:36	05/31/16 17:50	1
OCDF	0.153	J	10	0.039	pg/g		05/26/16 14:36	05/31/16 17:50	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	59		25 - 164	05/26/16 14:36	05/31/16 17:50	1
13C-1,2,3,7,8-PeCDD	57		25 - 181	05/26/16 14:36	05/31/16 17:50	1
13C-1,2,3,4,7,8-HxCDD	57		32 - 141	05/26/16 14:36	05/31/16 17:50	1
13C-1,2,3,6,7,8-HxCDD	65		28 - 130	05/26/16 14:36	05/31/16 17:50	1
13C-1,2,3,4,6,7,8-HpCDD	59		23 - 140	05/26/16 14:36	05/31/16 17:50	1
13C-OCDD	56		17 - 157	05/26/16 14:36	05/31/16 17:50	1
13C-2,3,7,8-TCDF	61		24 - 169	05/26/16 14:36	05/31/16 17:50	1
13C-1,2,3,7,8-PeCDF	58		24 - 185	05/26/16 14:36	05/31/16 17:50	1
13C-2,3,4,7,8-PeCDF	58		21 - 178	05/26/16 14:36	05/31/16 17:50	1
13C-1,2,3,4,7,8-HxCDF	64		26 - 152	05/26/16 14:36	05/31/16 17:50	1
13C-1,2,3,6,7,8-HxCDF	67		26 - 123	05/26/16 14:36	05/31/16 17:50	1
13C-2,3,4,6,7,8-HxCDF	65		28 - 136	05/26/16 14:36	05/31/16 17:50	1
13C-1,2,3,7,8,9-HxCDF	58		29 - 147	05/26/16 14:36	05/31/16 17:50	1
13C-1,2,3,4,6,7,8-HpCDF	61		28 - 143	05/26/16 14:36	05/31/16 17:50	1
13C-1,2,3,4,7,8,9-HpCDF	59		26 - 138	05/26/16 14:36	05/31/16 17:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	106		35 - 197	05/26/16 14:36	05/31/16 17:50	1

**Lab Sample ID: LCS 320-111553/2-A**  
**Matrix: Solid**  
**Analysis Batch: 112019**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 111553**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	20.0	20.8		pg/g		104	67 - 158
1,2,3,7,8-PeCDD	100	106		pg/g		106	70 - 142
1,2,3,4,7,8-HxCDD	100	110		pg/g		110	70 - 164
1,2,3,6,7,8-HxCDD	100	112		pg/g		112	76 - 134
1,2,3,7,8,9-HxCDD	100	112		pg/g		112	64 - 162

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

**Lab Sample ID: LCS 320-111553/2-A**

**Matrix: Solid**

**Analysis Batch: 112019**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 111553**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD	100	111		pg/g		111	70 - 140
OCDD	200	216		pg/g		108	78 - 144
2,3,7,8-TCDF	20.0	19.0		pg/g		95	75 - 158
1,2,3,7,8-PeCDF	100	114		pg/g		114	80 - 134
2,3,4,7,8-PeCDF	100	113		pg/g		113	68 - 160
1,2,3,4,7,8-HxCDF	100	105		pg/g		105	72 - 134
1,2,3,6,7,8-HxCDF	100	109		pg/g		109	84 - 130
2,3,4,6,7,8-HxCDF	100	109		pg/g		109	70 - 156
1,2,3,7,8,9-HxCDF	100	106		pg/g		106	78 - 130
1,2,3,4,6,7,8-HpCDF	100	108		pg/g		108	82 - 122
1,2,3,4,7,8,9-HpCDF	100	110		pg/g		110	78 - 138
OCDF	200	217		pg/g		108	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	52		20 - 175
13C-1,2,3,7,8-PeCDD	49		21 - 227
13C-1,2,3,4,7,8-HxCDD	47		21 - 193
13C-1,2,3,6,7,8-HxCDD	54		25 - 163
13C-1,2,3,4,6,7,8-HpCDD	50		26 - 166
13C-OCDD	49		13 - 199
13C-2,3,7,8-TCDF	52		22 - 152
13C-1,2,3,7,8-PeCDF	50		21 - 192
13C-2,3,4,7,8-PeCDF	49		13 - 328
13C-1,2,3,4,7,8-HxCDF	52		19 - 202
13C-1,2,3,6,7,8-HxCDF	55		21 - 159
13C-2,3,4,6,7,8-HxCDF	53		22 - 176
13C-1,2,3,7,8,9-HxCDF	50		17 - 205
13C-1,2,3,4,6,7,8-HpCDF	52		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	51		20 - 186

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	99		35 - 197

## Method: 9034 - Sulfide, Acid Soluble and Insoluble (Titrimetric)

**Lab Sample ID: MB 280-328007/6-A**

**Matrix: Solid**

**Analysis Batch: 328013**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 328007**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		5.0	2.4	mg/Kg		06/01/16 16:38	06/01/16 18:17	1

**Lab Sample ID: LCS 280-328007/5-A**

**Matrix: Solid**

**Analysis Batch: 328013**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 328007**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	87.6	61.6		mg/Kg		70	38 - 104

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

## Method: 9060\_PSEP - TOC (Puget Sound)

**Lab Sample ID: MB 580-218043/5**

**Matrix: Solid**

**Analysis Batch: 218043**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		2000	44	mg/Kg			05/25/16 08:35	1

**Lab Sample ID: LCS 580-218043/6**

**Matrix: Solid**

**Analysis Batch: 218043**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	4620	4660		mg/Kg		101	49 - 151

**Lab Sample ID: LCSD 580-218043/7**

**Matrix: Solid**

**Analysis Batch: 218043**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	4620	5030		mg/Kg		109	49 - 151	8	35

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

**Client Sample ID: TBS001-11\_12**

**Lab Sample ID: 580-59757-1**

Date Collected: 05/16/16 11:15

Matrix: Solid

Date Received: 05/20/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 09:57	SPP	TAL SEA

**Client Sample ID: TBS003-14\_15**

**Lab Sample ID: 580-59757-2**

Date Collected: 05/16/16 09:25

Matrix: Solid

Date Received: 05/20/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 10:03	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217897	05/23/16 15:49	J1J	TAL SEA
Total/NA	Analysis	D422		1	218054	05/25/16 12:19	JSM	TAL SEA

**Client Sample ID: TBS003-14\_15**

**Lab Sample ID: 580-59757-2**

Date Collected: 05/16/16 09:25

Matrix: Solid

Date Received: 05/20/16 09:30

Percent Solids: 65.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: TBS005-17\_18**

**Lab Sample ID: 580-59757-3**

Date Collected: 05/17/16 11:55

Matrix: Solid

Date Received: 05/20/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 10:09	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217897	05/23/16 15:49	J1J	TAL SEA
Total/NA	Analysis	D422		1	218054	05/25/16 12:19	JSM	TAL SEA

**Client Sample ID: TBS005-17\_18**

**Lab Sample ID: 580-59757-3**

Date Collected: 05/17/16 11:55

Matrix: Solid

Date Received: 05/20/16 09:30

Percent Solids: 74.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: TPS002-0.5\_1.5**

**Lab Sample ID: 580-59757-4**

Date Collected: 05/17/16 14:10

Matrix: Solid

Date Received: 05/20/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218005	05/24/16 18:08	Z1T	TAL SEA

TestAmerica Seattle

## Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 10:15	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217897	05/23/16 15:49	J1J	TAL SEA

**Client Sample ID: TPS002-0.5\_1.5**

**Lab Sample ID: 580-59757-4**

**Date Collected: 05/17/16 14:10**

**Matrix: Solid**

**Date Received: 05/20/16 09:30**

**Percent Solids: 94.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			218030	05/25/16 08:41	J1J	TAL SEA
Total/NA	Analysis	8270D SIM		1	218035	05/25/16 15:50	D1R	TAL SEA
Total/NA	Prep	HRMS-Sox			111553	05/26/16 14:38	BNB	TAL SAC
Total/NA	Analysis	1613B		1	112019	05/31/16 19:22	SMA	TAL SAC

**Client Sample ID: TBS007-16.5\_17.5**

**Lab Sample ID: 580-59757-5**

**Date Collected: 05/17/16 15:20**

**Matrix: Solid**

**Date Received: 05/20/16 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218043	05/25/16 10:20	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	217897	05/23/16 15:49	J1J	TAL SEA
Total/NA	Analysis	D422		1	218054	05/25/16 12:19	JSM	TAL SEA

**Client Sample ID: TBS007-16.5\_17.5**

**Lab Sample ID: 580-59757-5**

**Date Collected: 05/17/16 15:20**

**Matrix: Solid**

**Date Received: 05/20/16 09:30**

**Percent Solids: 78.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9045D		Solid	pH
9060_PSEP		Solid	Total Organic Carbon - Duplicates
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

## Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

## Laboratory: TestAmerica Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C581	05-05-17

The following analytes are included in this report, but are not certified under this certification:

Analysis Method	Prep Method	Matrix	Analyte
1613B	HRMS-Sox	Solid	1,2,3,4,6,7,8-HpCDD
1613B	HRMS-Sox	Solid	1,2,3,4,6,7,8-HpCDF
1613B	HRMS-Sox	Solid	1,2,3,4,7,8,9-HpCDF
1613B	HRMS-Sox	Solid	1,2,3,4,7,8-HxCDD
1613B	HRMS-Sox	Solid	1,2,3,4,7,8-HxCDF
1613B	HRMS-Sox	Solid	1,2,3,6,7,8-HxCDD
1613B	HRMS-Sox	Solid	1,2,3,6,7,8-HxCDF
1613B	HRMS-Sox	Solid	1,2,3,7,8,9-HxCDD
1613B	HRMS-Sox	Solid	1,2,3,7,8,9-HxCDF
1613B	HRMS-Sox	Solid	1,2,3,7,8-PeCDD
1613B	HRMS-Sox	Solid	1,2,3,7,8-PeCDF
1613B	HRMS-Sox	Solid	2,3,4,6,7,8-HxCDF
1613B	HRMS-Sox	Solid	2,3,4,7,8-PeCDF
1613B	HRMS-Sox	Solid	2,3,7,8-TCDD
1613B	HRMS-Sox	Solid	2,3,7,8-TCDF
1613B	HRMS-Sox	Solid	OCDD
1613B	HRMS-Sox	Solid	OCDF

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59757-1	TBS001-11_12	Solid	05/16/16 11:15	05/20/16 09:30
580-59757-2	TBS003-14_15	Solid	05/16/16 09:25	05/20/16 09:30
580-59757-3	TBS005-17_18	Solid	05/17/16 11:55	05/20/16 09:30
580-59757-4	TPS002-0.5_1.5	Solid	05/17/16 14:10	05/20/16 09:30
580-59757-5	TBS007-16.5_17.5	Solid	05/17/16 15:20	05/20/16 09:30

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55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

Field Sampler(s):  
GSI

## Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>	<b>Lab PM</b>																																																								
Project Name: Parcel 15 - POT	SDG: _____	<b>Brooks Applied Labs</b>	<b>TestAmerica</b>																																																								
Project # or PO #: 603.002.010	Custody Seals Intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Analysis Requested</b>																																																									
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No	<table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr><td>Anoxic Homogenization*</td><td>Arsenic</td><td>Iron</td><td>Total Solids</td><td>Arsenic Speciation As (III)/As(V)</td><td>Sequential Extraction</td><td>Batch Adsorption</td><td>Archives (frozen)**</td><td>Total Organic Carbon</td><td>Pentachlorophenol and pH</td><td>Dioxin/Furans</td><td>Sulfide</td><td>Grain Size</td><td>Archive Only (Frozen)**</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>		Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archives (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)**																																										
Anoxic Homogenization*	Arsenic			Iron	Total Solids	Arsenic Speciation As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archives (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)**																																												
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C	Brooks - Ben Wozniak - 206-753-6158																																																									
Report to email: echughes@gslws.com, cryals@gslws.com	Therm ID No.: _____ Therm Exp. _____																																																										
Analysis Turnaround Time: <input type="checkbox"/> 21 days (STD)		TestAmerica - Christabel Escarez - 253.248.4975																																																									
<input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input checked="" type="checkbox"/> 3 day * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day * <i>See Contract</i>		Sample Specific Notes:																																																									

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archives (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)**	Sample Specific Notes:
TBS001 - <del>10.5-11.5</del> <sup>RF</sup> 11-12	5/16/16	1115	G	S	1	X	X	X	X				X	X						
<del>TBS002 - 12.5-13.5</del>	↓	1400	↓	↓	↓	X	X	X	X				X	X						
TBS003 - 14-15	5/17/16	925	↓	↓	↓	X	X	X	X	X	X	X	X	X			X	X		
<del>TBS003 - 1</del> <sup>RF</sup>	5/17/16	1000																		
TBS005 - 17-18	5/17/16	1155	G	S	2	X	X	X	X	X	X	X	X	X			X	X		
TPS002 - 0.5-1.5	↓	1410	↓	↓	↓	X	X	X	X	X	X	X	X	X	X		X	X		no sulfide + grain size <sup>RF</sup>
TBS007 - 16.5-17.5	↓	1520	↓	↓	↓	X	X	X	X	X	X	X	X	X			X	X		
TPS001 - 0.5-1.5	↓	1720	↓	↓	↓	X	X	X	X	X	X	X	X	X	X		X	X		
TPS001F - 1.5-2.5	↓	1730	↓	↓	↓	X	X	X	X	X	X	X	X	X	X		X	X		
TPS002 - 10.5-12.5	5/17/16	1530	G	S	1	X	X	X	X				X	X	X					



<b>Possible Hazard Identification:</b>		<b>Sample Disposal</b> (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)	
Are samples hazardous? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input checked="" type="checkbox"/> Archive for 1 yr + contact GSI	
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic		<i>Erin Hughes</i>	
If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.		<i>Chris Ryals</i>	
Received by: <i>Chris Ryals</i>	Date/Time: 5/18/16 8:15am	Relinquished by: <i>Erin Hughes</i>	Date/Time: 5/18/16 8:15
Received by: <i>[Signature]</i>	Date/Time: 5/17/16 10:45	Relinquished by: <i>[Signature]</i>	Date/Time: 5/18/16 10:45
Received in Laboratory by: <i>[Signature]</i>	Date/Time: 5/20/16 8:35	Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other	Tracking #: <i>5/20/16 8:35</i>

**Special Instructions/QC Requirements**

- \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.
- \*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.
- \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.

Please contact Cindy Ryals at 971-200-8531 with any questions.

TB Cooler IR2 Cor 7.8" Unc 7.6"  
Cooler Dsc LG Blnd/coln@Lab 0930  
Wet/Packs Packing  
w/cs



<b>Client Information (Sub Contract Lab)</b> Client Contact: Escarez, Christabel C Shipping/Receiving: christabel.escarez@testamericainc.com		Lab P/N: Escarez, Christabel C E-Mail: christabel.escarez@testamericainc.com		Carrier Tracking No(s): COC No: 580-38574-1 Page: Page 1 of 1 Job #: 580-59757-1	
<b>Analysis Requested</b>					
Due Date Requested: 6/5/2016 TAT Requested (days): PO #: WO #: Project #: 58009703 SSOW#:		Total Number of Containers:			
Address: TestAmerica Laboratories, Inc. 4955 Yarrow Street City: Arvada State, zip: CO, 80002 Phone: 303-736-0100(Tel) 303-431-7171(Fax) Email:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)			
Sample Identification - Client ID (Lab ID) TBS003-14_15 (580-59757-2) TBS005-17_18 (580-59757-3) TBS007-16.5_17.5 (580-59757-5)		Field Filtered Sample (Yes or No) Herion MS(MSD) (Yes or No) 934/9030B		Special Instructions/Note:	
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater)	Special Instructions/Note:	
5/16/16	09:25 Pacific	Solid	W	X	
5/17/16	11:55 Pacific	Solid	S	X	
5/17/16	15:20 Pacific	Solid	O	X	
<b>Possible Hazard Identification</b> Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/QC Requirements:					
Empty Kit Relinquished by: _____ Date: _____ Time: _____					
Relinquished by: Tom Blants Date/Time: 5/23/16 Company: TA-Sea Company:					
Relinquished by: _____ Date/Time: _____ Company:					
Relinquished by: _____ Date/Time: _____ Company:					
Custody Seals Intact: _____ Custody Seal No.: _____ Δ Yes Δ No					
Cooler Temperature(s) °C and Other Remarks: 3.6 to 0.0 IR#5 Transferred by DW 5/24/16					



**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler		Lab PM		Carrier Tracking No(s)		COC No	
Client Contact Shipping/Receiving		Phone		Escarez, Christabel C		580-38578.1		Page 1 of 1	
Company TestAmerica Laboratories, Inc		E-Mail christabel_escarez@testamericainc.com		Analysis Requested		Job #		580-59757-1	
Address 880 Riverside Parkway,		Due Date Requested: 6/5/2016		TAT Requested (days):		Preservation Codes:		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 X - EDTA Y - EDA Z - other (specify)	
City West Sacramento		PO #		WVO #		Project #		58009703	
State, Zip CA, 95605		Phone 916-373-5600(Tel) 916-372-1059(Fax)		Email		SSOW#		Other:	
Parcel 15 RI		Project Name		Site		Sample Date		5/17/16	
Sample Identification - Client ID (Lab ID)		Sample Time		Sample Date		Sample Type		C=Comp, G=grab	
TBS002-0.5_15 (580-59757-4)		14 10 Pacific		14 10 Pacific		Matrix		W=water, S=solid, O=wasteln, BT=TISSUE, A=AIR	
Field Filtered Sample Yes or No		Field Filtered Sample Yes or No		Field Filtered Sample Yes or No		Field Filtered Sample Yes or No		Field Filtered Sample Yes or No	
1518/HRMS Sox P Full List w/o Totals		1518/HRMS Sox P Full List w/o Totals		1518/HRMS Sox P Full List w/o Totals		1518/HRMS Sox P Full List w/o Totals		1518/HRMS Sox P Full List w/o Totals	
Total Number of Containers		Total Number of Containers		Total Number of Containers		Total Number of Containers		Total Number of Containers	
Special Instructions/Note:		Special Instructions/Note:		Special Instructions/Note:		Special Instructions/Note:		Special Instructions/Note:	
Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)	
Unconfirmed		Unconfirmed		Unconfirmed		Unconfirmed		Unconfirmed	
Deliverable Requested I, II, III, IV, Other (specify)		Deliverable Requested I, II, III, IV, Other (specify)		Deliverable Requested I, II, III, IV, Other (specify)		Deliverable Requested I, II, III, IV, Other (specify)		Deliverable Requested I, II, III, IV, Other (specify)	
Empty Kit Relinquished by		Empty Kit Relinquished by		Empty Kit Relinquished by		Empty Kit Relinquished by		Empty Kit Relinquished by	
Relinquished by		Relinquished by		Relinquished by		Relinquished by		Relinquished by	
Tom Blanks		Tom Blanks		Tom Blanks		Tom Blanks		Tom Blanks	
Date/Time		Date/Time		Date/Time		Date/Time		Date/Time	
5/23/16		5/23/16		5/23/16		5/23/16		5/23/16	
Company		Company		Company		Company		Company	
TA SA		TA SA		TA SA		TA SA		TA SA	
Received by		Received by		Received by		Received by		Received by	
Date/Time		Date/Time		Date/Time		Date/Time		Date/Time	
5/24/16 0940		5/24/16 0940		5/24/16 0940		5/24/16 0940		5/24/16 0940	
Company		Company		Company		Company		Company	
PKUS		PKUS		PKUS		PKUS		PKUS	
Custody Seal No.:		Custody Seal No.:		Custody Seal No.:		Custody Seal No.:		Custody Seal No.:	
Yes No		Yes No		Yes No		Yes No		Yes No	
Cooler Temperature(s) °C and Other Remarks		Cooler Temperature(s) °C and Other Remarks		Cooler Temperature(s) °C and Other Remarks		Cooler Temperature(s) °C and Other Remarks		Cooler Temperature(s) °C and Other Remarks	
10		10		10		10		10	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59757-1

**Login Number: 59757**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59757-1

**Login Number: 59757**

**List Number: 3**

**Creator: White, Denise E**

**List Source: TestAmerica Denver**

**List Creation: 05/24/16 02:30 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59757-1

**Login Number: 59757**

**List Number: 2**

**Creator: Hytrek, Cheryl**

**List Source: TestAmerica Sacramento**

**List Creation: 05/24/16 01:19 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	False	CLEAR JAR FOR DIOXIN
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	



# Isotope Dilution Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (25-164)	PeCDD (25-181)	HxCDD1 (32-141)	HxCDD2 (28-130)	HpCDD (23-140)	OCDD (17-157)	TCDF (24-169)	PeCDF1 (24-185)
580-59757-4	TPS002-0.5_1.5	51	48	51	58	53	50	53	50
MB 320-111553/1-A	Method Blank	59	57	57	65	59	56	61	58

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	PeCDF2 (21-178)	HxCDF1 (26-152)	HxCDF2 (26-123)	HxCDF3 (28-136)	HxCDF4 (29-147)	HpCDF1 (28-143)	HpCDF2 (26-138)
580-59757-4	TPS002-0.5_1.5	50	54	58	57	52	54	54
MB 320-111553/1-A	Method Blank	58	64	67	65	58	61	59

### Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD  
 PeCDD = 13C-1,2,3,7,8-PeCDD  
 HxCDD1 = 13C-1,2,3,4,7,8-HxCDD  
 HxCDD2 = 13C-1,2,3,6,7,8-HxCDD  
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD  
 OCDD = 13C-OCDD  
 TCDF = 13C-2,3,7,8-TCDF  
 PeCDF1 = 13C-1,2,3,7,8-PeCDF  
 PeCDF2 = 13C-2,3,4,7,8-PeCDF  
 HxCDF1 = 13C-1,2,3,4,7,8-HxCDF  
 HxCDF2 = 13C-1,2,3,6,7,8-HxCDF  
 HxCDF3 = 13C-2,3,4,6,7,8-HxCDF  
 HxCDF4 = 13C-1,2,3,7,8,9-HxCDF  
 HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF  
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	PeCDD (21-227)	HxCDD1 (21-193)	HxCDD2 (25-163)	HpCDD (26-166)	OCDD (13-199)	TCDF (22-152)	PeCDF1 (21-192)
LCS 320-111553/2-A	Lab Control Sample	52	49	47	54	50	49	52	50

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	PeCDF2 (13-328)	HxCDF1 (19-202)	HxCDF2 (21-159)	HxCDF3 (22-176)	HxCDF4 (17-205)	HpCDF1 (21-158)	HpCDF2 (20-186)
LCS 320-111553/2-A	Lab Control Sample	49	52	55	53	50	52	51

### Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD  
 PeCDD = 13C-1,2,3,7,8-PeCDD  
 HxCDD1 = 13C-1,2,3,4,7,8-HxCDD  
 HxCDD2 = 13C-1,2,3,6,7,8-HxCDD  
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD  
 OCDD = 13C-OCDD  
 TCDF = 13C-2,3,7,8-TCDF  
 PeCDF1 = 13C-1,2,3,7,8-PeCDF  
 PeCDF2 = 13C-2,3,4,7,8-PeCDF  
 HxCDF1 = 13C-1,2,3,4,7,8-HxCDF  
 HxCDF2 = 13C-1,2,3,6,7,8-HxCDF

TestAmerica Seattle

# Isotope Dilution Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59757-1

HxCDF3 = 13C-2,3,4,6,7,8-HxCDF  
HxCDF4 = 13C-1,2,3,7,8,9-HxCDF  
HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF  
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

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# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59818-1  
Client Project/Site: Parcel 15-POT

For:

GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/9/2016 4:25:40 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

**Job ID: 580-59818-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-59818-1

#### Receipt

The samples were received on 5/23/2016 12:25 PM; the samples arrived in good condition, properly preserved, and on ice. The temperature of the cooler at receipt was 5.4° C.

#### Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): TBS002-12.5-13.5 (580-59818-1), TPS001-0.5-1.5 (580-59818-2), TPS001F-1.5-2.5 (580-59818-3) and TPS002-10.5-12.5 (580-59818-4). The container labels list a sample date of 5/18, while the COC lists a sample 5/17. The samples were logged in according to the COC.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Dioxin

Method(s) 1613B: The method blank for preparation batch 320-111721 and analytical batch 320-112022 contained 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, OCDD, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 10D5 exceeded this criteria: TPS001-0.5-1.5 (580-59818-2), TPS001F-1.5-2.5 (580-59818-3), (CCV 320-112026/14) and (WDM 320-112026/15). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Dioxin

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

**Client Sample ID: TBS002-12.5-13.5**

**Lab Sample ID: 580-59818-1**

**Date Collected: 05/16/16 14:00**

**Matrix: Solid**

**Date Received: 05/23/16 12:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	380	J	2000	44	mg/Kg			05/26/16 09:15	1

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# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

**Client Sample ID: TPS001-0.5-1.5**

**Lab Sample ID: 580-59818-2**

Date Collected: 05/17/16 17:20

Matrix: Solid

Date Received: 05/23/16 12:25

Percent Solids: 91.4

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.018	J	0.021	0.0053	mg/Kg	☼	05/25/16 08:41	05/25/16 16:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	99		28 - 143				05/25/16 08:41	05/25/16 16:57	1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.099	J	1.1	0.095	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
1,2,3,7,8-PeCDD	1.3	J	5.3	0.13	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
1,2,3,4,7,8-HxCDD	1.9	J	5.3	0.11	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
1,2,3,6,7,8-HxCDD	7.3		5.3	0.11	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
1,2,3,7,8,9-HxCDD	4.7	J B	5.3	0.092	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
1,2,3,4,6,7,8-HpCDD	130	B	5.3	0.69	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
OCDD	830	B	11	0.49	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
1,2,3,7,8-PeCDF	0.64	J	5.3	0.26	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
2,3,4,7,8-PeCDF	0.89	J	5.3	0.28	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
1,2,3,4,7,8-HxCDF	1.9	J B	5.3	0.18	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
1,2,3,6,7,8-HxCDF	2.4	J B	5.3	0.17	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
2,3,4,6,7,8-HxCDF	1.9	J	5.3	0.14	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
1,2,3,7,8,9-HxCDF	ND		5.3	0.14	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
1,2,3,4,6,7,8-HpCDF	40	B	5.3	0.40	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
1,2,3,4,7,8,9-HpCDF	2.1	J B	5.3	0.70	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
OCDF	65	B	11	0.090	pg/g	☼	05/27/16 13:42	06/01/16 07:02	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	56		25 - 164				05/27/16 13:42	06/01/16 07:02	1
13C-1,2,3,7,8-PeCDD	57		25 - 181				05/27/16 13:42	06/01/16 07:02	1
13C-1,2,3,4,7,8-HxCDD	58		32 - 141				05/27/16 13:42	06/01/16 07:02	1
13C-1,2,3,6,7,8-HxCDD	60		28 - 130				05/27/16 13:42	06/01/16 07:02	1
13C-1,2,3,4,6,7,8-HpCDD	60		23 - 140				05/27/16 13:42	06/01/16 07:02	1
13C-OCDD	60		17 - 157				05/27/16 13:42	06/01/16 07:02	1
13C-2,3,7,8-TCDF	55		24 - 169				05/27/16 13:42	06/01/16 07:02	1
13C-1,2,3,7,8-PeCDF	57		24 - 185				05/27/16 13:42	06/01/16 07:02	1
13C-2,3,4,7,8-PeCDF	57		21 - 178				05/27/16 13:42	06/01/16 07:02	1
13C-1,2,3,4,7,8-HxCDF	60		26 - 152				05/27/16 13:42	06/01/16 07:02	1
13C-1,2,3,6,7,8-HxCDF	59		26 - 123				05/27/16 13:42	06/01/16 07:02	1
13C-2,3,4,6,7,8-HxCDF	61		28 - 136				05/27/16 13:42	06/01/16 07:02	1
13C-1,2,3,7,8,9-HxCDF	58		29 - 147				05/27/16 13:42	06/01/16 07:02	1
13C-1,2,3,4,6,7,8-HpCDF	57		28 - 143				05/27/16 13:42	06/01/16 07:02	1
13C-1,2,3,4,7,8,9-HpCDF	49		26 - 138				05/27/16 13:42	06/01/16 07:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	107		35 - 197				05/27/16 13:42	06/01/16 07:02	1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.94	J	1.1	0.53	pg/g	☼	05/27/16 13:42	06/01/16 17:18	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	53		24 - 169				05/27/16 13:42	06/01/16 17:18	1

TestAmerica Seattle

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

**Client Sample ID: TPS001-0.5-1.5**

**Lab Sample ID: 580-59818-2**

**Date Collected: 05/17/16 17:20**

**Matrix: Solid**

**Date Received: 05/23/16 12:25**

**Percent Solids: 91.4**

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
37Cl4-2,3,7,8-TCDD	97		35 - 197				05/27/16 13:42	06/01/16 17:18	1
<b>General Chemistry</b>									
Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.75				SU			05/28/16 10:46	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	4900		2000	44	mg/Kg			05/26/16 09:20	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91.4		0.1	0.1	%			05/25/16 12:47	1
Percent Moisture	8.6		0.1	0.1	%			05/25/16 12:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

**Client Sample ID: TPS001F-1.5-2.5**

**Lab Sample ID: 580-59818-3**

Date Collected: 05/17/16 17:30

Matrix: Solid

Date Received: 05/23/16 12:25

Percent Solids: 91.7

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.018	J	0.019	0.0047	mg/Kg	☒	05/25/16 08:41	05/25/16 17:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	94		28 - 143				05/25/16 08:41	05/25/16 17:20	1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		1.0	0.057	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
1,2,3,7,8-PeCDD	0.40	J	5.2	0.087	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
1,2,3,4,7,8-HxCDD	0.63	J	5.2	0.071	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
1,2,3,6,7,8-HxCDD	5.9		5.2	0.073	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
1,2,3,7,8,9-HxCDD	2.3	J B	5.2	0.062	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
1,2,3,4,6,7,8-HpCDD	82	B	5.2	0.45	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
OCDD	530	B	10	0.33	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
2,3,7,8-TCDF	0.45	J	1.0	0.047	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
1,2,3,7,8-PeCDF	ND		5.2	0.080	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
2,3,4,7,8-PeCDF	0.25	J	5.2	0.083	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
1,2,3,4,7,8-HxCDF	0.65	J B	5.2	0.080	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
1,2,3,6,7,8-HxCDF	0.76	J B	5.2	0.075	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
2,3,4,6,7,8-HxCDF	0.61	J	5.2	0.063	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
1,2,3,7,8,9-HxCDF	ND		5.2	0.060	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
1,2,3,4,6,7,8-HpCDF	16	B	5.2	0.21	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
1,2,3,4,7,8,9-HpCDF	1.1	J B	5.2	0.29	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1
OCDF	30	B	10	0.060	pg/g	☒	05/27/16 13:42	06/01/16 07:48	1

Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	56		25 - 164				05/27/16 13:42	06/01/16 07:48	1
13C-1,2,3,7,8-PeCDD	57		25 - 181				05/27/16 13:42	06/01/16 07:48	1
13C-1,2,3,4,7,8-HxCDD	59		32 - 141				05/27/16 13:42	06/01/16 07:48	1
13C-1,2,3,6,7,8-HxCDD	59		28 - 130				05/27/16 13:42	06/01/16 07:48	1
13C-1,2,3,4,6,7,8-HpCDD	63		23 - 140				05/27/16 13:42	06/01/16 07:48	1
13C-OCDD	62		17 - 157				05/27/16 13:42	06/01/16 07:48	1
13C-2,3,7,8-TCDF	55		24 - 169				05/27/16 13:42	06/01/16 07:48	1
13C-1,2,3,7,8-PeCDF	56		24 - 185				05/27/16 13:42	06/01/16 07:48	1
13C-2,3,4,7,8-PeCDF	56		21 - 178				05/27/16 13:42	06/01/16 07:48	1
13C-1,2,3,4,7,8-HxCDF	60		26 - 152				05/27/16 13:42	06/01/16 07:48	1
13C-1,2,3,6,7,8-HxCDF	59		26 - 123				05/27/16 13:42	06/01/16 07:48	1
13C-2,3,4,6,7,8-HxCDF	60		28 - 136				05/27/16 13:42	06/01/16 07:48	1
13C-1,2,3,7,8,9-HxCDF	60		29 - 147				05/27/16 13:42	06/01/16 07:48	1
13C-1,2,3,4,6,7,8-HpCDF	60		28 - 143				05/27/16 13:42	06/01/16 07:48	1
13C-1,2,3,4,7,8,9-HpCDF	60		26 - 138				05/27/16 13:42	06/01/16 07:48	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	103		35 - 197				05/27/16 13:42	06/01/16 07:48	1

## General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.50				SU			05/28/16 10:47	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	4300		2000	44	mg/Kg			05/26/16 09:26	1

TestAmerica Seattle

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

**Client Sample ID: TPS001F-1.5-2.5**

**Lab Sample ID: 580-59818-3**

**Date Collected: 05/17/16 17:30**

**Matrix: Solid**

**Date Received: 05/23/16 12:25**

**Percent Solids: 91.7**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91.7		0.1	0.1	%			05/25/16 12:47	1
Percent Moisture	8.3		0.1	0.1	%			05/25/16 12:47	1

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# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

**Client Sample ID: TPS002-10.5-12.5**

**Lab Sample ID: 580-59818-4**

**Date Collected: 05/17/16 15:30**

**Matrix: Solid**

**Date Received: 05/23/16 12:25**

## General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.40				SU			05/28/16 10:48	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	3000		2000	44	mg/Kg			05/26/16 09:31	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	77.2		0.1	0.1	%			05/25/16 12:47	1
Percent Moisture	22.8		0.1	0.1	%			05/25/16 12:47	1

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# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

**Client Sample ID: TPS002-10.5-12.5**

**Lab Sample ID: 580-59818-4**

**Date Collected: 05/17/16 15:30**

**Matrix: Solid**

**Date Received: 05/23/16 12:25**

**Percent Solids: 77.2**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.019	J	0.022	0.0056	mg/Kg	☼	05/25/16 08:41	05/25/16 17:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	92		28 - 143				05/25/16 08:41	05/25/16 17:42	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-218030/1-A**  
**Matrix: Solid**  
**Analysis Batch: 218035**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 218030**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.020	0.0050	mg/Kg		05/25/16 08:41	05/25/16 12:50	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	95		28 - 143				05/25/16 08:41	05/25/16 12:50	1

**Lab Sample ID: LCS 580-218030/2-A**  
**Matrix: Solid**  
**Analysis Batch: 218035**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 218030**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	2.00	1.93		mg/Kg		96	45 - 117
Surrogate	%Recovery	LCS Qualifier	Limits				
2,4,6-Tribromophenol	102		28 - 143				

**Lab Sample ID: LCSD 580-218030/3-A**  
**Matrix: Solid**  
**Analysis Batch: 218035**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 218030**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	2.00	1.96		mg/Kg		98	45 - 117	2	23
Surrogate	%Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	103		28 - 143						

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

**Lab Sample ID: MB 320-111721/1-A**  
**Matrix: Solid**  
**Analysis Batch: 112022**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 111721**

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		1.0	0.083	pg/g		05/27/16 13:42	05/31/16 19:39	1
1,2,3,7,8-PeCDD	ND		5.0	0.10	pg/g		05/27/16 13:42	05/31/16 19:39	1
1,2,3,4,7,8-HxCDD	ND		5.0	0.059	pg/g		05/27/16 13:42	05/31/16 19:39	1
1,2,3,6,7,8-HxCDD	ND		5.0	0.058	pg/g		05/27/16 13:42	05/31/16 19:39	1
1,2,3,7,8,9-HxCDD	0.149	J	5.0	0.050	pg/g		05/27/16 13:42	05/31/16 19:39	1
1,2,3,4,6,7,8-HpCDD	0.273	J	5.0	0.047	pg/g		05/27/16 13:42	05/31/16 19:39	1
OCDD	0.929	J	10	0.072	pg/g		05/27/16 13:42	05/31/16 19:39	1
2,3,7,8-TCDF	ND		1.0	0.077	pg/g		05/27/16 13:42	05/31/16 19:39	1
1,2,3,7,8-PeCDF	ND		5.0	0.068	pg/g		05/27/16 13:42	05/31/16 19:39	1
2,3,4,7,8-PeCDF	ND		5.0	0.072	pg/g		05/27/16 13:42	05/31/16 19:39	1
1,2,3,4,7,8-HxCDF	0.0667	J q	5.0	0.052	pg/g		05/27/16 13:42	05/31/16 19:39	1
1,2,3,6,7,8-HxCDF	0.0935	J	5.0	0.049	pg/g		05/27/16 13:42	05/31/16 19:39	1
2,3,4,6,7,8-HxCDF	ND		5.0	0.042	pg/g		05/27/16 13:42	05/31/16 19:39	1
1,2,3,7,8,9-HxCDF	0.131	J q	5.0	0.042	pg/g		05/27/16 13:42	05/31/16 19:39	1
1,2,3,4,6,7,8-HpCDF	0.206	J	5.0	0.061	pg/g		05/27/16 13:42	05/31/16 19:39	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 320-111721/1-A**  
**Matrix: Solid**  
**Analysis Batch: 112022**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 111721**

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,7,8,9-HpCDF	0.198	J q	5.0	0.090	pg/g		05/27/16 13:42	05/31/16 19:39	1
OCDF	0.470	J	10	0.094	pg/g		05/27/16 13:42	05/31/16 19:39	1
MB MB									
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	53		25 - 164				05/27/16 13:42	05/31/16 19:39	1
13C-1,2,3,7,8-PeCDD	54		25 - 181				05/27/16 13:42	05/31/16 19:39	1
13C-1,2,3,4,7,8-HxCDD	54		32 - 141				05/27/16 13:42	05/31/16 19:39	1
13C-1,2,3,6,7,8-HxCDD	54		28 - 130				05/27/16 13:42	05/31/16 19:39	1
13C-1,2,3,4,6,7,8-HpCDD	55		23 - 140				05/27/16 13:42	05/31/16 19:39	1
13C-OCDD	50		17 - 157				05/27/16 13:42	05/31/16 19:39	1
13C-2,3,7,8-TCDF	51		24 - 169				05/27/16 13:42	05/31/16 19:39	1
13C-1,2,3,7,8-PeCDF	52		24 - 185				05/27/16 13:42	05/31/16 19:39	1
13C-2,3,4,7,8-PeCDF	53		21 - 178				05/27/16 13:42	05/31/16 19:39	1
13C-1,2,3,4,7,8-HxCDF	54		26 - 152				05/27/16 13:42	05/31/16 19:39	1
13C-1,2,3,6,7,8-HxCDF	55		26 - 123				05/27/16 13:42	05/31/16 19:39	1
13C-2,3,4,6,7,8-HxCDF	55		28 - 136				05/27/16 13:42	05/31/16 19:39	1
13C-1,2,3,7,8,9-HxCDF	53		29 - 147				05/27/16 13:42	05/31/16 19:39	1
13C-1,2,3,4,6,7,8-HpCDF	53		28 - 143				05/27/16 13:42	05/31/16 19:39	1
13C-1,2,3,4,7,8,9-HpCDF	51		26 - 138				05/27/16 13:42	05/31/16 19:39	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	97		35 - 197				05/27/16 13:42	05/31/16 19:39	1

**Lab Sample ID: LCS 320-111721/2-A**  
**Matrix: Solid**  
**Analysis Batch: 112022**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 111721**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDD	20.0	20.4		pg/g		102	67 - 158
1,2,3,7,8-PeCDD	100	106		pg/g		106	70 - 142
1,2,3,4,7,8-HxCDD	100	107		pg/g		107	70 - 164
1,2,3,6,7,8-HxCDD	100	106		pg/g		106	76 - 134
1,2,3,7,8,9-HxCDD	100	106		pg/g		106	64 - 162
1,2,3,4,6,7,8-HpCDD	100	103		pg/g		103	70 - 140
OCDD	200	211		pg/g		106	78 - 144
2,3,7,8-TCDF	20.0	21.4		pg/g		107	75 - 158
1,2,3,7,8-PeCDF	100	107		pg/g		107	80 - 134
2,3,4,7,8-PeCDF	100	105		pg/g		105	68 - 160
1,2,3,4,7,8-HxCDF	100	107		pg/g		107	72 - 134
1,2,3,6,7,8-HxCDF	100	106		pg/g		106	84 - 130
2,3,4,6,7,8-HxCDF	100	104		pg/g		104	70 - 156
1,2,3,7,8,9-HxCDF	100	105		pg/g		105	78 - 130
1,2,3,4,6,7,8-HpCDF	100	107		pg/g		107	82 - 122
1,2,3,4,7,8,9-HpCDF	100	109		pg/g		109	78 - 138
OCDF	200	202		pg/g		101	63 - 170
LCS LCS							
Isotope Dilution	%Recovery	Qualifier	Limits				
13C-2,3,7,8-TCDD	63		20 - 175				

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

**Lab Sample ID: LCS 320-111721/2-A**  
**Matrix: Solid**  
**Analysis Batch: 112022**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 111721**

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,7,8-PeCDD	64		21 - 227
13C-1,2,3,4,7,8-HxCDD	66		21 - 193
13C-1,2,3,6,7,8-HxCDD	65		25 - 163
13C-1,2,3,4,6,7,8-HpCDD	67		26 - 166
13C-OCDD	63		13 - 199
13C-2,3,7,8-TCDF	61		22 - 152
13C-1,2,3,7,8-PeCDF	62		21 - 192
13C-2,3,4,7,8-PeCDF	63		13 - 328
13C-1,2,3,4,7,8-HxCDF	65		19 - 202
13C-1,2,3,6,7,8-HxCDF	65		21 - 159
13C-2,3,4,6,7,8-HxCDF	66		22 - 176
13C-1,2,3,7,8,9-HxCDF	64		17 - 205
13C-1,2,3,4,6,7,8-HpCDF	64		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	62		20 - 186
Surrogate	LCS LCS		Limits
37Cl4-2,3,7,8-TCDD	107		35 - 197

## Method: 9060\_PSEP - TOC (Puget Sound)

**Lab Sample ID: MB 580-218188/5**  
**Matrix: Solid**  
**Analysis Batch: 218188**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		2000	44	mg/Kg			05/26/16 08:41	1

**Lab Sample ID: LCS 580-218188/6**  
**Matrix: Solid**  
**Analysis Batch: 218188**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	4620	5430		mg/Kg		117	49 - 151

**Lab Sample ID: LCSD 580-218188/7**  
**Matrix: Solid**  
**Analysis Batch: 218188**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	4620	4770		mg/Kg		103	49 - 151	13	35

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

**Client Sample ID: TBS002-12.5-13.5**

**Date Collected: 05/16/16 14:00**

**Date Received: 05/23/16 12:25**

**Lab Sample ID: 580-59818-1**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 09:15	SPP	TAL SEA

**Client Sample ID: TPS001-0.5-1.5**

**Date Collected: 05/17/16 17:20**

**Date Received: 05/23/16 12:25**

**Lab Sample ID: 580-59818-2**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218314	05/28/16 10:46	Z1T	TAL SEA
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 09:20	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: TPS001-0.5-1.5**

**Date Collected: 05/17/16 17:20**

**Date Received: 05/23/16 12:25**

**Lab Sample ID: 580-59818-2**

**Matrix: Solid**

**Percent Solids: 91.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			218030	05/25/16 08:41	J1J	TAL SEA
Total/NA	Analysis	8270D SIM		1	218035	05/25/16 16:57	D1R	TAL SEA
Total/NA	Prep	HRMS-Sox			111721	05/27/16 13:42	DXD	TAL SAC
Total/NA	Analysis	1613B		1	112026	06/01/16 07:02	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		111721	05/27/16 13:42	DXD	TAL SAC
Total/NA	Analysis	1613B	RA	1	112162	06/01/16 17:18	ALM	TAL SAC

**Client Sample ID: TPS001F-1.5-2.5**

**Date Collected: 05/17/16 17:30**

**Date Received: 05/23/16 12:25**

**Lab Sample ID: 580-59818-3**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218314	05/28/16 10:47	Z1T	TAL SEA
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 09:26	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: TPS001F-1.5-2.5**

**Date Collected: 05/17/16 17:30**

**Date Received: 05/23/16 12:25**

**Lab Sample ID: 580-59818-3**

**Matrix: Solid**

**Percent Solids: 91.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			218030	05/25/16 08:41	J1J	TAL SEA
Total/NA	Analysis	8270D SIM		1	218035	05/25/16 17:20	D1R	TAL SEA
Total/NA	Prep	HRMS-Sox			111721	05/27/16 13:42	DXD	TAL SAC
Total/NA	Analysis	1613B		1	112026	06/01/16 07:48	SMA	TAL SAC

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

**Client Sample ID: TPS002-10.5-12.5**

**Lab Sample ID: 580-59818-4**

**Date Collected: 05/17/16 15:30**

**Matrix: Solid**

**Date Received: 05/23/16 12:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218314	05/28/16 10:48	Z1T	TAL SEA
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 09:31	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: TPS002-10.5-12.5**

**Lab Sample ID: 580-59818-4**

**Date Collected: 05/17/16 15:30**

**Matrix: Solid**

**Date Received: 05/23/16 12:25**

**Percent Solids: 77.2**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			218030	05/25/16 08:41	J1J	TAL SEA
Total/NA	Analysis	8270D SIM		1	218035	05/25/16 17:42	D1R	TAL SEA

**Laboratory References:**

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9045D		Solid	pH
9060_PSEP		Solid	Total Organic Carbon - Duplicates
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

## Laboratory: TestAmerica Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C581	05-05-17

The following analytes are included in this report, but are not certified under this certification:

Analysis Method	Prep Method	Matrix	Analyte
1613B	HRMS-Sox	Solid	1,2,3,4,6,7,8-HpCDD
1613B	HRMS-Sox	Solid	1,2,3,4,6,7,8-HpCDF
1613B	HRMS-Sox	Solid	1,2,3,4,7,8,9-HpCDF
1613B	HRMS-Sox	Solid	1,2,3,4,7,8-HxCDD
1613B	HRMS-Sox	Solid	1,2,3,4,7,8-HxCDF
1613B	HRMS-Sox	Solid	1,2,3,6,7,8-HxCDD
1613B	HRMS-Sox	Solid	1,2,3,6,7,8-HxCDF
1613B	HRMS-Sox	Solid	1,2,3,7,8,9-HxCDD
1613B	HRMS-Sox	Solid	1,2,3,7,8,9-HxCDF
1613B	HRMS-Sox	Solid	1,2,3,7,8-PeCDD
1613B	HRMS-Sox	Solid	1,2,3,7,8-PeCDF
1613B	HRMS-Sox	Solid	2,3,4,6,7,8-HxCDF
1613B	HRMS-Sox	Solid	2,3,4,7,8-PeCDF
1613B	HRMS-Sox	Solid	2,3,7,8-TCDD
1613B	HRMS-Sox	Solid	2,3,7,8-TCDF
1613B	HRMS-Sox	Solid	OCDD
1613B	HRMS-Sox	Solid	OCDF



# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59818-1	TBS002-12.5-13.5	Solid	05/16/16 14:00	05/23/16 12:25
580-59818-2	TPS001-0.5-1.5	Solid	05/17/16 17:20	05/23/16 12:25
580-59818-3	TPS001F-1.5-2.5	Solid	05/17/16 17:30	05/23/16 12:25
580-59818-4	TPS002-10.5-12.5	Solid	05/17/16 15:30	05/23/16 12:25

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55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

Chain of Custody Record

Field Sampler(s):  
GSI

Client Contact

Laboratory

Lab PM

Project Name: Parcel 15 - POT

For Lab Use Only:

Brooks Applied Labs

TestAmerica

Project # or PO #: 693.002.010

SDG: \_\_\_\_\_

Analysis Requested

Project Manager: Erin Hughes/Cindy Ryals

Custody Seals Intact?  Yes  No

Brooks - Ben  
Mozniak - 206-793-6198

Phone #: 971-200-8528 and 971-200-8531

Hand delivered?  Yes  No

TestAmerica -  
Escarez-  
293.248.4975

Report to: email: eschughes@gslw.com, cryals@gslw.com

Cooler Temp: \_\_\_\_\_ °C

Sample Specific  
Notes:

Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

Analysis Turnaround Time: \_\_\_\_\_

Analysis Turnaround Time:  14 days\*  7 days\*  5 days\*  3 day\*  2 days\*  1 day\*  See Contract

Sample Identification	Sample Date	Sample Time	Sample Type (Ice-comp. optional)	Matrix	Total # of Cont.	Analysis Requested										Sample Specific Notes
						Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	

<del>TPS001 - 12.5 - 13.5</del>	SI116	1115	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
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<del>TPS002 - 12.5 - 13.5</del>	SI116	1400				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
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<del>TPS003 - 14 - 15</del>	SI116	925				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
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<del>TPS005 - 14 - 15</del>	SI116	1155	G	S	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
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<del>TPS007 - 16.5 - 17.5</del>	SI116	1416				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
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<del>TPS001 - 0.5 - 1.5</del>	SI116	1720				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
-------------------------------	-------	------	--	--	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--	--	--	--

<del>TPS001 F - 1.5 - 2.5</del>	SI116	1730				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
---------------------------------	-------	------	--	--	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--	--	--	--

<del>TPS002 - 10.5 - 12.5</del>	SI116	1530	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
---------------------------------	-------	------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--	--	--	--

Possible Hazard Identification:  
Are samples hazardous?  Yes  No  
If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous)  
 Return to Client  Dispose by Lab  Archive for \_\_\_\_\_  
Date/Time: 5/18/16 8:15

Received by: \_\_\_\_\_ Date/Time: 5/18/16 10:45

Received in Laboratory by: \_\_\_\_\_ Date/Time: 5/23/16 12:25

Special Instructions/QC Requirements  
\* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis  
\*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis  
\*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test Amer  
Please contact Cindy Ryals at 971-200-8531 with any questions.



TB Cooler Tr2 Cor 5.4 Unc 5.2  
Cooler Desc Prod Refill@Lab 1600  
- Wet/Packs Packing Babbie  
w/c S

580-59818 Chain of Custody



Chain of Custody Record

Client Information (Sub Contract Lab)  
Shipping/Receiving

Carrier Tracking No(s)

Lab PM Escarez, Christabel C

E-Mail christabel.escarez@testamercainc.com

COG No 580-38866 1

Page 1 of 1

Analysis Requested

Due Date Requested: 6/8/2016

TAT Requested (days):

Job # 580-59818-1

Preservation Codes:

- A - HCL
- B - NaOH
- C - Zn Acetate
- D - Nitric Acid
- E - NaHSO4
- F - MeOH
- G - Amchlor
- H - Ascorbic Acid
- I - Ice
- J - DI Water
- K - EDTA
- L - EDA
- Other:
- M - Hexane
- N - None
- O - AsHClO2
- P - Na2O4S
- Q - Na2SO3
- R - Na2SO3
- S - H2SO4
- T - TSP Dodecaldehyde
- U - Acetone
- V - MCAA
- W - pH 4-5
- Z - other (specify)

Sampler

Phone

PO #

WO #

Project # 58009703

SSOW#

Lab PM Escarez, Christabel C

E-Mail christabel.escarez@testamercainc.com

Company TestAmerica Laboratories, Inc.

Address: 880 Riverside Parkway,  
West Sacramento  
CA, 95605

Phone 916-373-5600(Tel) 916-372-1059(Fax)

Email

Project Name Parcel 15-POT

Site

Field Filtered Sample (Yes or No)

1613B/HRMS\_Sox\_P Full List w/o Totals

Matrix (W-water, S-solid, O-wastewater, L-lubricant, A-Air)

Sample Type (C=Comp, G=grab)

Sample Date

Sample Time

Preservation Code

Special Instructions/Note:

Total Number of Containers

TPS001-0 5-1 5 (580-59818-2)

TPS001F-1.5-2 5 (580-59818-3)

Matrix Solid

Sample Type Solid

Sample Date 5/17/16

Sample Time 17:20 Pacific

Preservation Code

Special Instructions/Note: X

Special Instructions/Note: X

Special Instructions/Note:

Special Instructions/Note:

Special Instructions/Note:

Special Instructions/Note:

Special Instructions/Note:

Special Instructions/Note:

Special Instructions/Note:

Special Instructions/Note:

Special Instructions/Note:

Special Instructions/Note:

Special Instructions/Note:

Special Instructions/Note:

Special Instructions/Note:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Months

Special Instructions/QC Requirements:

Method of Shipment

Received by

Date/Time

Company

Received by

Date/Time

Company

Received by

Date/Time

Company

Cooler Temperature(s) °C and Other Remarks

1. J



# Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59818-1

**Login Number: 59818**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gamble, Cathy L**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59818-1

**Login Number: 59818**  
**List Number: 2**  
**Creator: Edman, Connor M**

**List Source: TestAmerica Sacramento**  
**List Creation: 05/26/16 11:38 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	False	clear jars for dioxins
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Isotope Dilution Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	PeCDD (25-181)	HxCDD1 (32-141)	HxCDD2 (28-130)	HpCDD (23-140)	OCDD (17-157)	TCDF (24-169)	PeCDF1 (24-185)
580-59818-2	TPS001-0.5-1.5	56	57	58	60	60	60	55	57
580-59818-2 - RA	TPS001-0.5-1.5							53	
580-59818-3	TPS001F-1.5-2.5	56	57	59	59	63	62	55	56
MB 320-111721/1-A	Method Blank	53	54	54	54	55	50	51	52

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PeCDF2 (21-178)	HxCDF1 (26-152)	HxCDF2 (26-123)	HxCDF3 (28-136)	HxCDF4 (29-147)	HpCDF1 (28-143)	HpCDF2 (26-138)	PeCDF1 (24-185)
580-59818-2	TPS001-0.5-1.5	57	60	59	61	58	57	49	57
580-59818-2 - RA	TPS001-0.5-1.5								
580-59818-3	TPS001F-1.5-2.5	56	60	59	60	60	60	60	56
MB 320-111721/1-A	Method Blank	53	54	55	55	53	53	51	52

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PeCDF2 (13-328)	PeCDF2 (21-178)	HxCDF1 (19-202)	HxCDF1 (26-152)	HxCDF2 (21-159)	HxCDF2 (26-123)	HxCDF3 (22-176)	HxCDF3 (28-136)
580-59818-2	TPS001-0.5-1.5		57		60		59		61
580-59818-2 - RA	TPS001-0.5-1.5								
580-59818-3	TPS001F-1.5-2.5		56		60		59		60
MB 320-111721/1-A	Method Blank		53		54		55		55

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxCDF4 (17-205)	HxCDF4 (29-147)	HpCDF1 (21-158)	HpCDF1 (28-143)	HpCDF2 (20-186)	HpCDF2 (26-138)
580-59818-2	TPS001-0.5-1.5		58		57		49
580-59818-2 - RA	TPS001-0.5-1.5						
580-59818-3	TPS001F-1.5-2.5		60		60		60
MB 320-111721/1-A	Method Blank		53		53		51

#### Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- PeCDD = 13C-1,2,3,7,8-PeCDD
- HxCDD1 = 13C-1,2,3,4,7,8-HxCDD
- HxCDD2 = 13C-1,2,3,6,7,8-HxCDD
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- OCDD = 13C-OCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDF1 = 13C-1,2,3,7,8-PeCDF
- PeCDF2 = 13C-2,3,4,7,8-PeCDF
- HxCDF1 = 13C-1,2,3,4,7,8-HxCDF
- HxCDF2 = 13C-1,2,3,6,7,8-HxCDF
- HxCDF3 = 13C-2,3,4,6,7,8-HxCDF
- HxCDF4 = 13C-1,2,3,7,8,9-HxCDF
- HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

# Isotope Dilution Summary

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-1

## Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (20-175)	PeCDD (21-227)	HxCDD1 (21-193)	HxCDD2 (25-163)	HpCDD (26-166)	OCDD (13-199)	TCDF (22-152)	PeCDF1 (21-192)
LCS 320-111721/2-A	Lab Control Sample	63	64	66	65	67	63	61	62

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PeCDF2 (13-328)	HxCDF1 (19-202)	HxCDF2 (21-159)	HxCDF3 (22-176)	HxCDF4 (17-205)	HpCDF1 (21-158)	HpCDF2 (20-186)	
LCS 320-111721/2-A	Lab Control Sample	63	65	65	66	64	64	62	

**Surrogate Legend**

- TCDD = 13C-2,3,7,8-TCDD
- PeCDD = 13C-1,2,3,7,8-PeCDD
- HxCDD1 = 13C-1,2,3,4,7,8-HxCDD
- HxCDD2 = 13C-1,2,3,6,7,8-HxCDD
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- OCDD = 13C-OCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDF1 = 13C-1,2,3,7,8-PeCDF
- PeCDF2 = 13C-2,3,4,7,8-PeCDF
- HxCDF1 = 13C-1,2,3,4,7,8-HxCDF
- HxCDF2 = 13C-1,2,3,6,7,8-HxCDF
- HxCDF3 = 13C-2,3,4,6,7,8-HxCDF
- HxCDF4 = 13C-1,2,3,7,8,9-HxCDF
- HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59818-2  
Client Project/Site: Parcel 15-POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/17/2016 1:57:28 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

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*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-2

**Job ID: 580-59818-2**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-59818-2

#### Comments

No additional comments.

#### Receipt

The samples were received on 5/23/2016 12:25 PM; the samples arrived in good condition, properly preserved, and on ice. The temperature of the cooler at receipt was 5.4° C.

#### Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): TBS002-12.5-13.5 (580-59818-1), TPS001-0.5-1.5 (580-59818-2), TPS001F-1.5-2.5 (580-59818-3) and TPS002-10.5-12.5 (580-59818-4). The container labels list a sample date of 5/18, while the COC lists a sample 5/17. The samples were logged in according to the COC.

The following samples were activated for 6020A/7471A RCRA 8 and NWTPH-HCID analyses by the client on 6/9/16: TPS001-0.5-1.5 (580-59818-2). This analysis was not originally requested on the chain-of-custody (COC).

#### GC Semi VOA

Method(s) NWTPH-HCID: The following sample was prepared outside of preparation holding time, per client request.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-2

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-2

**Client Sample ID: TPS001-0.5-1.5**

**Lab Sample ID: 580-59818-2**

**Date Collected: 05/17/16 17:20**

**Matrix: Solid**

**Date Received: 05/23/16 12:25**

**Percent Solids: 91.4**

**Method: NWTPH-HCID - Northwest - Hydrocarbon Identification (GC)**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Motor Oil</b>	<b>230</b>	<b>H</b>	110	110	mg/Kg	☼	06/10/16 08:43	06/14/16 14:18	1
Gasoline	ND	H	21	21	mg/Kg	☼	06/10/16 08:43	06/14/16 14:18	1
#2 Diesel (>C12-C24)	ND	H	54	54	mg/Kg	☼	06/10/16 08:43	06/14/16 14:18	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o</i> -Terphenyl	83		50 - 150				06/10/16 08:43	06/14/16 14:18	1
4-Bromofluorobenzene (Surr)	66		50 - 150				06/10/16 08:43	06/14/16 14:18	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>3.4</b>		0.50	0.18	mg/Kg	☼	06/15/16 10:04	06/16/16 16:17	10
<b>Barium</b>	<b>30</b>		0.50	0.077	mg/Kg	☼	06/15/16 10:04	06/16/16 16:17	10
<b>Cadmium</b>	<b>0.12</b>	<b>J</b>	0.20	0.019	mg/Kg	☼	06/15/16 10:04	06/16/16 16:17	10
<b>Chromium</b>	<b>19</b>		0.50	0.062	mg/Kg	☼	06/15/16 10:04	06/16/16 16:17	10
<b>Lead</b>	<b>7.5</b>		0.50	0.048	mg/Kg	☼	06/15/16 10:04	06/16/16 16:17	10
<b>Selenium</b>	<b>0.28</b>	<b>J</b>	0.99	0.20	mg/Kg	☼	06/15/16 10:04	06/16/16 16:17	10
<b>Silver</b>	<b>0.027</b>	<b>J</b>	0.20	0.012	mg/Kg	☼	06/15/16 10:04	06/16/16 16:17	10

**Method: 7471A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Mercury</b>	<b>0.041</b>		0.019	0.0058	mg/Kg	☼	06/13/16 12:09	06/13/16 17:42	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-2

## Method: NWTPH-HCID - Northwest - Hydrocarbon Identification (GC)

**Lab Sample ID: MB 580-219365/1-A**

**Matrix: Solid**

**Analysis Batch: 219764**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 219365**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil	ND		100	100	mg/Kg		06/10/16 08:43	06/14/16 13:58	1
Gasoline	ND		20	20	mg/Kg		06/10/16 08:43	06/14/16 13:58	1
#2 Diesel (>C12-C24)	ND		50	50	mg/Kg		06/10/16 08:43	06/14/16 13:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	76		50 - 150	06/10/16 08:43	06/14/16 13:58	1
4-Bromofluorobenzene (Surr)	70		50 - 150	06/10/16 08:43	06/14/16 13:58	1

**Lab Sample ID: 580-59818-2 DU**

**Matrix: Solid**

**Analysis Batch: 219764**

**Client Sample ID: TPS001-0.5-1.5**

**Prep Type: Total/NA**

**Prep Batch: 219365**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Motor Oil	230	H	161		mg/Kg	☼	34	35
Gasoline	ND	H	ND		mg/Kg	☼	NC	35
#2 Diesel (>C12-C24)	ND	H	ND		mg/Kg	☼	NC	35

Surrogate	DU %Recovery	DU Qualifier	Limits
<i>o</i> -Terphenyl	81		50 - 150
4-Bromofluorobenzene (Surr)	70		50 - 150

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 580-219868/20-A**

**Matrix: Solid**

**Analysis Batch: 220081**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 219868**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	0.18	mg/Kg		06/15/16 10:04	06/16/16 15:05	10
Barium	ND		0.50	0.078	mg/Kg		06/15/16 10:04	06/16/16 15:05	10
Cadmium	ND		0.20	0.019	mg/Kg		06/15/16 10:04	06/16/16 15:05	10
Chromium	ND		0.50	0.063	mg/Kg		06/15/16 10:04	06/16/16 15:05	10
Lead	ND		0.50	0.048	mg/Kg		06/15/16 10:04	06/16/16 15:05	10
Selenium	ND		1.0	0.20	mg/Kg		06/15/16 10:04	06/16/16 15:05	10
Silver	ND		0.20	0.012	mg/Kg		06/15/16 10:04	06/16/16 15:05	10

**Lab Sample ID: LCS 580-219868/21-A**

**Matrix: Solid**

**Analysis Batch: 220081**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 219868**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	200	193		mg/Kg		96	80 - 120
Barium	200	187		mg/Kg		94	80 - 120
Cadmium	5.00	4.79		mg/Kg		96	80 - 120
Chromium	20.0	19.3		mg/Kg		96	80 - 120
Lead	50.0	48.5		mg/Kg		97	80 - 120
Selenium	200	196		mg/Kg		98	80 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-2

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID:** LCS 580-219868/21-A  
**Matrix:** Solid  
**Analysis Batch:** 220081

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 219868

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	30.0	28.7		mg/Kg		96	80 - 120

**Lab Sample ID:** LCSD 580-219868/22-A  
**Matrix:** Solid  
**Analysis Batch:** 220081

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA  
**Prep Batch:** 219868

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Arsenic	200	195		mg/Kg		97	80 - 120	1	20
Barium	200	189		mg/Kg		95	80 - 120	1	20
Cadmium	5.00	5.05		mg/Kg		101	80 - 120	5	20
Chromium	20.0	19.6		mg/Kg		98	80 - 120	2	20
Lead	50.0	49.7		mg/Kg		99	80 - 120	2	20
Selenium	200	197		mg/Kg		99	80 - 120	1	20
Silver	30.0	29.5		mg/Kg		98	80 - 120	2	20

**Lab Sample ID:** LCSSRM 580-219868/23-A  
**Matrix:** Solid  
**Analysis Batch:** 220081

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 219868

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	139	143		mg/Kg		102.9	70.4 - 140.3
Barium	203	198		mg/Kg		97.6	73.4 - 127.1
Cadmium	96.0	93.9		mg/Kg		97.8	73.2 - 127.1
Chromium	136	139		mg/Kg		102.1	69.9 - 129.4
Lead	133	135		mg/Kg		101.1	72.9 - 127.8
Selenium	177	183		mg/Kg		103.6	67.8 - 131.6
Silver	40.2	41.1		mg/Kg		102.3	66.2 - 134.1

## Method: 7471A - Mercury (CVAA)

**Lab Sample ID:** MB 580-219631/15-A  
**Matrix:** Solid  
**Analysis Batch:** 219700

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA  
**Prep Batch:** 219631

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.020	0.0060	mg/Kg		06/13/16 12:09	06/13/16 17:21	1

**Lab Sample ID:** LCS 580-219631/16-A  
**Matrix:** Solid  
**Analysis Batch:** 219700

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 219631

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.176		mg/Kg		106	80 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-2

## Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 580-219631/17-A  
Matrix: Solid  
Analysis Batch: 219700

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 219631

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.167	0.177		mg/Kg		106	80 - 120	0	20

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# Lab Chronicle

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-2

**Client Sample ID: TPS001-0.5-1.5**

**Lab Sample ID: 580-59818-2**

**Date Collected: 05/17/16 17:20**

**Matrix: Solid**

**Date Received: 05/23/16 12:25**

**Percent Solids: 91.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			219365	06/10/16 08:43	CBS	TAL SEA
Total/NA	Analysis	NWTPH-HCID		1	219764	06/14/16 14:18	KZ1	TAL SEA
Total/NA	Prep	3050B			219868	06/15/16 10:04	MKN	TAL SEA
Total/NA	Analysis	6020A		10	220081	06/16/16 16:17	FCW	TAL SEA
Total/NA	Prep	7471A			219631	06/13/16 12:09	MKN	TAL SEA
Total/NA	Analysis	7471A		1	219700	06/13/16 17:42	FCW	TAL SEA

**Laboratory References:**

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310





# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-2

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
NWTPH-HCID	3546	Solid	#2 Diesel (>C12-C24)
NWTPH-HCID	3546	Solid	Gasoline
NWTPH-HCID	3546	Solid	Motor Oil

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-2

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59818-2	TPS001-0.5-1.5	Solid	05/17/16 17:20	05/23/16 12:25

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55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

# Chain of Custody Record

Field Sampler(s):  
 GSI

Client Contact: \_\_\_\_\_

Laboratory

Lab PM

Project Name: Parcel 15 - POT  
 Project # or PO #: 693,602,010

Brooks Applied Labs  
 Analysis Requested

Brooks - Ben  
 Mornjak - 206-793-6198

Project Manager: Erin Hughes/Cindy Ryals  
 Phone #: 971-200-8528 and 971-200-8531

Hand delivered?  Yes  No  
 Cooler Temp: \_\_\_\_\_ °C

TestAmerica -  
 Escarez - 253,248,4975

Report to: email: eohughes@gslw.com, cryals@gslw.com  
 Therm ID No.: \_\_\_\_\_ Therm Exp.: \_\_\_\_\_

Analysis Turnaround Time:  14 days\*  7 days\*  5 days\*  3 day\*  2 days\*  1 day\* **see contract**

Sample Identification	Sample Date	Sample Time	Sample Type (Ice-comp. general)	Matrix	Total # of Cont.	Analysis Requested										Sample Specific Notes:			
						Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH		Dioxin/Furans	Sulfide	Grain Size
<del>TB5001 - 12.5 - 13.5</del>						X	X	X	X	X	X	X	X	X	X	X	X		
TB5002 - 12.5 - 13.5		1400	↓			X	X	X	X	X	X	X	X	X	X	X	X		
TB5003 - 14 - 15		925	↓			X	X	X	X	X	X	X	X	X	X	X	X		
<del>TB5003 - 14 - 15</del>						X	X	X	X	X	X	X	X	X	X	X	X		
TB5005 - 14 - 15		115	↓			X	X	X	X	X	X	X	X	X	X	X	X		
TP5002 - 0.5 - 1.5		1410	↓			X	X	X	X	X	X	X	X	X	X	X	X		
TB5007 - 10.5 - 11.5		1520	↓			X	X	X	X	X	X	X	X	X	X	X	X		
TP5001 - 0.5 - 1.5		1720	↓			X	X	X	X	X	X	X	X	X	X	X	X		
TP5001 F - 1.5 - 2.5		1730	↓			X	X	X	X	X	X	X	X	X	X	X	X		
TP5002 - 10.5 - 12.5		1530	↓			X	X	X	X	X	X	X	X	X	X	X	X		

Possible Hazard Identification:  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous)  
 Return to Client  Dispose by Lab  Archive for  
 Reindisposed by: Erin Hughes Date/Time: 5/28/16 8:15  
 Reindisposed by: [Signature] Date/Time: 5/28/16 10:45

Received by: [Signature] Date/Time: 5/28/16 10:45  
 Received in Laboratory by: [Signature] Date/Time: 5/28/16 12:25

Shipped Via:  UPS  FedEx  USPS  Other  
 Tracking #: \_\_\_\_\_

Special Instructions/QC Requirements  
 \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis  
 \*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential futu  
 \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test Amei  
 please contact Cindy Ryals at 971-200-8531 with any questions.

Shipped Via:  UPS  FedEx  USPS  Other  
 Tracking #: \_\_\_\_\_

TB Cooler Tr2 Cor 5.4 Unc 5.2  
 Cooler Dsc Prod Refill @ Lab 1600  
 - Wet/Packs Packing 84 bbl w/c  
 580-59818 Chain of Custody

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59818-2

**Login Number: 59818**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gamble, Cathy L**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59818-3  
Client Project/Site: Parcel 15-POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/30/2016 5:57:14 PM  
Kristine Allen, Manager of Project Management  
(253)248-4970  
[kristine.allen@testamericainc.com](mailto:kristine.allen@testamericainc.com)

Designee for  
Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-3

**Job ID: 580-59818-3**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-59818-3

#### Comments

No additional comments.

#### Receipt

The samples were received on 5/23/2016 12:25 PM; the samples arrived in good condition, properly preserved, and on ice. The temperature of the cooler at receipt was 5.4° C.

#### Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): TBS002-12.5-13.5 (580-59818-1), TPS001-0.5-1.5 (580-59818-2), TPS001F-1.5-2.5 (580-59818-3) and TPS002-10.5-12.5 (580-59818-4). The container labels list a sample date of 5/18, while the COC lists a sample 5/17. The samples were logged in according to the COC.

The following samples were activated for 6020A/7471A RCRA 8 and NWTPH-HCID analyses by the client on 6/23/16: TPS001F-1.5-2.5 (580-59818-3). This analysis was not originally requested on the chain-of-custody (COC). The sample was not extracted for NWTPH-HCID before the sample was removed from refrigeration and placed in the disposal area. Additional volume was received from Brooks Applied on 6/29/16. Prior to receipt, the sample was frozen and anoxically stored. The sample was then subsampled for TestAmerica receipt on 6/29.

#### GC Semi VOA

Method(s) NWTPH-HCID: The following sample was prepared outside of preparation holding time.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-3

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

### Metals

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-3

**Client Sample ID: TPS001F-1.5-2.5**

**Lab Sample ID: 580-59818-3**

**Date Collected: 05/17/16 17:30**

**Matrix: Solid**

**Date Received: 05/23/16 12:25**

**Percent Solids: 91.7**

**Method: NWTPH-HCID - Northwest - Hydrocarbon Identification (GC)**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil	ND	H	110	110	mg/Kg	☼	06/30/16 09:09	06/30/16 15:40	1
Gasoline	ND	H	22	22	mg/Kg	☼	06/30/16 09:09	06/30/16 15:40	1
#2 Diesel (>C12-C24)	ND	H	54	54	mg/Kg	☼	06/30/16 09:09	06/30/16 15:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	74		50 - 150				06/30/16 09:09	06/30/16 15:40	1
4-Bromofluorobenzene (Surr)	71		50 - 150				06/30/16 09:09	06/30/16 15:40	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	43		0.49	0.18	mg/Kg	☼	06/24/16 16:45	06/29/16 13:58	10
Barium	42		0.49	0.077	mg/Kg	☼	06/24/16 16:45	06/29/16 13:58	10
Cadmium	0.24		0.20	0.019	mg/Kg	☼	06/24/16 16:45	06/29/16 13:58	10
Chromium	16		0.49	0.062	mg/Kg	☼	06/24/16 16:45	06/29/16 13:58	10
Lead	21		0.49	0.047	mg/Kg	☼	06/24/16 16:45	06/29/16 13:58	10
Selenium	0.41	J	0.98	0.20	mg/Kg	☼	06/24/16 16:45	06/29/16 13:58	10
Silver	0.096	J	0.20	0.012	mg/Kg	☼	06/24/16 16:45	06/29/16 13:58	10

**Method: 7471A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.020	H	0.019	0.0057	mg/Kg	☼	06/23/16 16:56	06/24/16 13:46	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-3

## Method: NWTPH-HCID - Northwest - Hydrocarbon Identification (GC)

**Lab Sample ID: MB 580-221221/1-A**

**Matrix: Solid**

**Analysis Batch: 221280**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 221221**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil	ND		100	100	mg/Kg		06/30/16 09:09	06/30/16 15:19	1
Gasoline	ND		20	20	mg/Kg		06/30/16 09:09	06/30/16 15:19	1
#2 Diesel (>C12-C24)	ND		50	50	mg/Kg		06/30/16 09:09	06/30/16 15:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150	06/30/16 09:09	06/30/16 15:19	1
4-Bromofluorobenzene (Surr)	72		50 - 150	06/30/16 09:09	06/30/16 15:19	1

**Lab Sample ID: 580-59818-3 DU**

**Matrix: Solid**

**Analysis Batch: 221280**

**Client Sample ID: TPS001F-1.5-2.5**

**Prep Type: Total/NA**

**Prep Batch: 221221**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Motor Oil	ND	H	ND		mg/Kg	☼	NC	35
Gasoline	ND	H	ND		mg/Kg	☼	NC	35
#2 Diesel (>C12-C24)	ND	H	ND		mg/Kg	☼	NC	35

Surrogate	DU %Recovery	DU Qualifier	Limits
<i>o</i> -Terphenyl	81		50 - 150
4-Bromofluorobenzene (Surr)	73		50 - 150

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 580-220799/17-A**

**Matrix: Solid**

**Analysis Batch: 221233**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 220799**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	0.18	mg/Kg		06/24/16 16:45	06/29/16 11:54	10
Barium	ND		0.50	0.078	mg/Kg		06/24/16 16:45	06/29/16 11:54	10
Cadmium	ND		0.20	0.019	mg/Kg		06/24/16 16:45	06/29/16 11:54	10
Chromium	ND		0.50	0.063	mg/Kg		06/24/16 16:45	06/29/16 11:54	10
Lead	ND		0.50	0.048	mg/Kg		06/24/16 16:45	06/29/16 11:54	10
Selenium	ND		1.0	0.20	mg/Kg		06/24/16 16:45	06/29/16 11:54	10
Silver	ND		0.20	0.012	mg/Kg		06/24/16 16:45	06/29/16 11:54	10

**Lab Sample ID: LCS 580-220799/18-A**

**Matrix: Solid**

**Analysis Batch: 221233**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 220799**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	200	207		mg/Kg		104	80 - 120
Barium	200	206		mg/Kg		103	80 - 120
Cadmium	5.00	5.25		mg/Kg		105	80 - 120
Chromium	20.0	20.2		mg/Kg		101	80 - 120
Lead	50.0	50.9		mg/Kg		102	80 - 120
Selenium	200	204		mg/Kg		102	80 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-3

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID:** LCS 580-220799/18-A  
**Matrix:** Solid  
**Analysis Batch:** 221233

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 220799

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	30.0	30.5		mg/Kg		102	80 - 120

**Lab Sample ID:** LCSD 580-220799/19-A  
**Matrix:** Solid  
**Analysis Batch:** 221233

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA  
**Prep Batch:** 220799

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Arsenic	200	206		mg/Kg		103	80 - 120	1	20
Barium	200	206		mg/Kg		103	80 - 120	0	20
Cadmium	5.00	5.15		mg/Kg		103	80 - 120	2	20
Chromium	20.0	19.8		mg/Kg		99	80 - 120	2	20
Lead	50.0	50.9		mg/Kg		102	80 - 120	0	20
Selenium	200	204		mg/Kg		102	80 - 120	0	20
Silver	30.0	30.2		mg/Kg		101	80 - 120	1	20

**Lab Sample ID:** LCSSRM 580-220799/20-A  
**Matrix:** Solid  
**Analysis Batch:** 221233

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 220799

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	139	143		mg/Kg		103.0	70.4 - 140.3
Barium	203	202		mg/Kg		99.7	73.4 - 127.1
Cadmium	96.0	91.2		mg/Kg		95.0	73.2 - 127.1
Chromium	136	134		mg/Kg		98.4	69.9 - 129.4
Lead	133	132		mg/Kg		99.2	72.9 - 127.8
Selenium	177	180		mg/Kg		101.4	67.8 - 131.6
Silver	40.2	39.3		mg/Kg		97.9	66.2 - 134.1

## Method: 7471A - Mercury (CVAA)

**Lab Sample ID:** MB 580-220705/16-A  
**Matrix:** Solid  
**Analysis Batch:** 220781

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA  
**Prep Batch:** 220705

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.020	0.0060	mg/Kg		06/23/16 16:56	06/24/16 13:24	1

**Lab Sample ID:** LCS 580-220705/17-A  
**Matrix:** Solid  
**Analysis Batch:** 220781

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 220705

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.146		mg/Kg		88	80 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-3

## Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 580-220705/18-A

Matrix: Solid

Analysis Batch: 220781

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 220705

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.167	0.147		mg/Kg		88	80 - 120	0	20

Lab Sample ID: LCSSRM 580-220705/19-A ^10

Matrix: Solid

Analysis Batch: 220781

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 220705

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	12.9	15.3		mg/Kg		118.8	51.2 - 148.1		

# Lab Chronicle

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-3

**Client Sample ID: TPS001F-1.5-2.5**

**Lab Sample ID: 580-59818-3**

**Date Collected: 05/17/16 17:30**

**Matrix: Solid**

**Date Received: 05/23/16 12:25**

**Percent Solids: 91.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			221221	06/30/16 09:09	J1J	TAL SEA
Total/NA	Analysis	NWTPH-HCID		1	221280	06/30/16 15:40	KZ1	TAL SEA
Total/NA	Prep	3050B			220799	06/24/16 16:45	PAB	TAL SEA
Total/NA	Analysis	6020A		10	221233	06/29/16 13:58	FCW	TAL SEA
Total/NA	Prep	7471A			220705	06/23/16 16:56	PAB	TAL SEA
Total/NA	Analysis	7471A		1	220781	06/24/16 13:46	FCW	TAL SEA

**Laboratory References:**

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-3

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
NWTPH-HCID	3546	Solid	#2 Diesel (>C12-C24)
NWTPH-HCID	3546	Solid	Gasoline
NWTPH-HCID	3546	Solid	Motor Oil

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15-POT

TestAmerica Job ID: 580-59818-3

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59818-3	TPS001F-1.5-2.5	Solid	05/17/16 17:30	05/23/16 12:25

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55 SW Yamhill St. Suite 300  
 Portland, Oregon 97204  
 503.239.8700

### Chain of Custody Record

Field Sampler(s):  
 GSI

Client Contact

For Lab Use Only:

Laboratory

Lab PM

Project Name: Parcel 15 - POT  
 Project # or PO #: 603,602,010

SDG: \_\_\_\_\_  
 Custody Seals Intact?  Yes  No

Brooks Applied Labs

TestAmerica

Brooks - Ben  
 Wozniak - 206-753-6158

Project Manager: Erin Hughes/Cindy Ryals  
 Phone #: 971-200-8528 and 971-200-8531

Hand delivered?  Yes  No  
 Cooler Temp: \_\_\_\_\_ °C

Analysis Requested

TestAmerica -  
 Cimstedon  
 Escarez -  
 293.240.4975

Report to email: erinhughes@gsi.com, cryals@gsi.com

Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

Analysis Turnaround Time:  21 days (STD)  
 14 days\*  7 days\*  5 days\*  
 3 day\*  2 days\*  1 day\*

SEE CONTACT

Sample Identification	Sample Date	Sample Time	Sample Type (i.e. comp. - general)	Matrix	Total # of Cont.	Analysis Requested												Sample Specific Notes:		
						Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide		Grain Size	Archive Only (Frozen)***
<del>TS001 - 12.5 - 13.5</del>						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TS002 - 12.5 - 13.5						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TS003 - 14 - 15						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<del>TS003 - 14 - 15</del>						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<del>TS005 - 19 - 18</del>						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TS002 - 0.5 - 1.5						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TS001 - 16.5 - 17.5						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TS001 - 0.5 - 1.5						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
RS001 F - 1.5 - 2.5						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TP5 002 - 10.5 - 12.5						X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Possible Hazard Identification:  
 Are samples hazardous?  Yes  No  
 If YES, select hazard(s):  Used  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous)  
 Return to Client  Dispose by Lab  Archive for  
 Reindisposed by: Erin Hughes Date/Time: 5/18/16 8:15  
 Reindisposed by: Ben Brooks Date/Time: 5/18/16 10:45

Received by: Erin Hughes Date/Time: 5/18/16 8:15  
 Received by: Ben Brooks Date/Time: 5/18/16 10:45  
 Received in Laboratory by: Ben Brooks Date/Time: 5/13/16 12:25

Shipped Via:  UPS  Fed-Ex  USPS  Other  
 Tracking #: \_\_\_\_\_

Special Instructions/QC Requirements  
 \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis  
 \*\* Brooks to archive approximately 8 oz of extra homogenized soft sediment frozen for potential future analysis  
 \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test Ame  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

TB Cooler Ixz Cor 5.4 Unc 5.2  
 Cooler Dsc Med Ref/Kit@Lab 1600  
 - Wet/Packs Packing 84bb/c  
 v/c/s



580-59818 Chain of Custody



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

### Chain of Custody Record

Field Sampler(s):  
 GSI

Client Contact

For Lab Use Only:

Laboratory

Lab PM

Project Name: Parcel 15 - POT  
 Project # or PO #: 693,602,010

SDG: \_\_\_\_\_  
 Custody Seals Intact?  Yes  No

Brooks Applied Labs  
 Analysis Requested

TestAmerica

Project Manager: Erin Hughes/Cindy Ryals  
 Phone #: 971-200-8528 and 971-200-8531

Hand delivered?  Yes  No  
 Cooler Temp: \_\_\_\_\_ °C

Brooks - Ben  
 Mornik - 206-793-6198

Report to: email: eohughes@gslw.com, cryals@gslw.com

Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

TestAmerica -  
 CMTS1291  
 Escarez-  
 293,248,4975

Analysis Turnaround Time:  14 days\*  7 days\*  5 days\*  3 day\*  2 days\*  1 day\*  21 days (SRO)

see contract

Sample Identification	Sample Date	Sample Time	Sample Type (Ice-comp, general)	Matrix	Total # of Cont.	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***	Sample Specific Notes:
<del>TR5001</del> TR5002-12.5-13.5	5/16/16	1400	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TR5003-14-15	5/16/16	925	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<del>TR5003-14-15</del> TR5003-14-15	5/16/16	1155	G	S	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	no sulfide + grain size
TR5005-14-15	5/16/16	1416	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TR5007-16.5-17.5	5/16/16	1520	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TR5001-0.5-1.5	5/16/16	1720	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TR5001F-1.5-2.5	5/16/16	1730	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TR5002-10.5-12.5	5/16/16	1530	G	S	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Possible Hazard Identification:  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

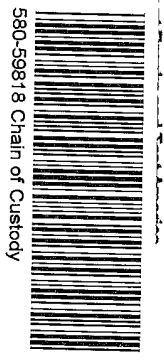
Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous)  
 Return to Client  Dispose by Lab  Archive for  
 Reindisposed by: Erin Hughes  
 Date/Time: 5/16/16 8:15

Received by: Erin Hughes  
 Date/Time: 5/16/16 8:15am

Refrindished by: Ben Mornik  
 Date/Time: 5/16/16 10:45

Received in Laboratory by: Erin Hughes  
 Date/Time: 5/23/16 12:25

Shipped Via:  UPS  Fed-Ex  USPS  Other  
 Tracking #: \_\_\_\_\_



TB Cooler I#2 Cor 5.4 Unc 5.2  
 Cooler Dsc Prod Refill@Lab 1600  
 -Wet/Packs Packing Bag 16  
 v/c 5



65 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

# Chain of Custody Record

Field Sampler(s):  
**GSI**

<b>Client Contact</b> Project Name: Parcel 15 - POT Project # or PO #: 603.002.010 Project Manager: Erin Hughes/Cindy Ryals Phone #: 971-200-8528 and 971-200-8531 Report to email: eohughes@gslws.com, cryals@gslws.com		<b>For Lab Use Only:</b> SDG: _____ Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____ °C Therm ID No.: _____ Therm Exp. _____		<b>Laboratory</b> Brooks Applied Labs (circled) TestAmerica <b>Analysis Requested</b> Anoxic Homogenization* Arsenic Iron Total Solids Arsenic Speciation - As (III)/As(V) Sequential Extraction Batch Adsorption Archive (frozen)** Total Organic Carbon Pentachlorophenol and pH Dioxin/Furans Sulfide Grain Size Archive Only (Frozen)**											<b>Lab PM</b> Brooks- Ben Wozniak- 206-753-6158 TestAmerica - Christabel Escarez- 253.248.4975						
<b>Analysis Turnaround Time:</b> <input type="checkbox"/> 21 days (STD) <input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input checked="" type="checkbox"/> See Contract <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *															<b>Sample Specific Notes:</b>						
<b>Sample Identification</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=Comp, G=Grab)</b>	<b>Matrix</b>	<b>Total # of Cont.</b>	Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)**	
<del>TBS001 - 10.5 - 11.5 BE</del>		5/16/16	1115	G	S	1	X	X	X	X				X	X						
<del>TBS002 - 12.5 - 13.5</del>		↓	1400	↓	↓	↓	X	X	X	X				X	X						
<del>TBS003 - 14 - 15</del>		5/17/16	925	↓	↓	↓	X	X	X	X	X	X	X	X	X			X	X		
<del>TBS003 - 14 - 15</del>		5/17/16	1000																		
<del>TBS005 - 17 - 18</del>		5/17/16	1155	G	S	2	X	X	X	X	X	X	X	X	X			X	X		
<del>TPS002 - 0.5 - 1.5</del>		↓	1410	↓	↓	↓	X	X	X	X	X	X	X	X	X	X	X	X	X	X	no sulfide + grain size
<del>TBS007 - 16.5 - 17.5</del>		↓	1520	↓	↓	↓	X	X	X	X	X	X	X	X	X			X	X		
<del>TPS001 - 0.5 - 1.5</del>		↓	1720	↓	↓	↓	X	X	X	X	X	X	X	X	X	X	X	X	X		
<del>TPS001F - 1.5 - 2.5</del>		↓	1730	↓	↓	↓	X	X	X	X	X	X	X	X	X	X	X	X	X		
<del>TPS002 - 10.5 - 12.5</del>		5/17/16	1530	G	S	1	X	X	X	X				X	X	X					

Not included  
 4/28/16 GW

Not included

RF

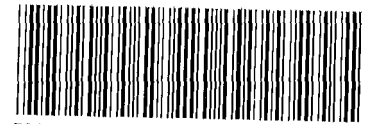
**Possible Hazard Identification:**  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

Received by: *Chris Byrnes* Date/Time: 5/16/16 8:15am  
 Received by: *[Signature]* Date/Time: 5/18/16 10:45  
 Received in Laboratory by: *[Signature]* Date/Time: 6/29/16 11:20

**Sample Disposal** (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive for 1 yr + contact GSI  
*Erin Hughes* 5/18/16 8:15  
*Chris Byrnes* 5/18/16 10:45  
*[Signature]* 6/29/16 9:00

Shipped via:  UPS  Fed-Ex  USPS  Other Tracking #:

**Special Instructions/QC Requirements**  
 \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.  
 \*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.  
 \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59818-3

**Login Number: 59818**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gamble, Cathy L**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59828-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/17/2016 2:37:43 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Job ID: 580-59828-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-59828-1

#### Receipt

The samples were received on 5/24/2016 9:25 AM; the samples arrived in good condition, properly preserved, and on ice. The temperature of the cooler at receipt was 6.4° C.

The following samples were received with less than two days of holding time remaining for 9034 sulfide analysis: WCTSD003A-0\_10 (580-59828-2), WCTSD003A-40\_50 (580-59828-3), WCTSD003B-0\_10 (580-59828-4), WCTSD003B-40\_50 (580-59828-5), WCTSD002A-0\_10 (580-59828-6), WCTSD002A-36\_46 (580-59828-7), WCTSD002B-0\_10 (580-59828-8), WCTSD002B-40\_50 (580-59828-9) and WCTSD001A-0\_10 (580-59828-10), WCTSD001A-40\_50 (580-59828-11), WCTSD001B-0\_10 (580-59828-12), WCTSD001B-40\_50 (580-59828-13), WCTSD004A-40\_50 (580-59828-14), WCTSD004B-40\_50 (580-59828-15) and WCTSD004A-0\_10 (580-59828-16). As a result, the samples were not analyzed within holding time.

Sample WCTSD004B-0\_10 (580-59828-17) was initially received with an incorrect chain-of-custody. A correct COC was received within holding time, but the sample was not logged in within holding time due to laboratory error. The following analyses were performed outside of holding time for this sample: 9060\_PSEP, 9034, and 8270D SIM.

#### GC/MS Semi VOA

Method(s) 8270D SIM: The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 580-218164 recovered outside control limits for Pentachlorophenol. This target analyte recovers within control limits for both the LCS and LCSD.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

Method(s) 9034: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-328203 and analytical batch 280-328211.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
H	Sample was prepped or analyzed beyond the specified holding time

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
H	Sample was prepped or analyzed beyond the specified holding time

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: TPS001TB-12\_13**

**Lab Sample ID: 580-59828-1**

**Date Collected: 05/18/16 09:20**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.25				SU			05/28/16 10:49	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	1200	J	2000	44	mg/Kg			05/26/16 09:37	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	74.7		0.1	0.1	%			05/25/16 12:47	1
Percent Moisture	25.3		0.1	0.1	%			05/25/16 12:47	1





# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: TPS001TB-12\_13**

**Lab Sample ID: 580-59828-1**

**Date Collected: 05/18/16 09:20**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 74.7**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.015	J*	0.022	0.0055	mg/Kg	☼	05/26/16 12:37	05/31/16 14:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	98		28 - 143				05/26/16 12:37	05/31/16 14:54	1

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# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD003A-0\_10**

**Lab Sample ID: 580-59828-2**

**Date Collected: 05/18/16 11:00**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>4700</b>		2000	44	mg/Kg			05/26/16 09:41	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>74.0</b>		0.1	0.1	%			05/25/16 12:47	1
<b>Percent Moisture</b>	<b>26.0</b>		0.1	0.1	%			05/25/16 12:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD003A-0\_10**

**Lab Sample ID: 580-59828-2**

**Date Collected: 05/18/16 11:00**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 74.0**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	29	H	6.7	3.2	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD003A-40\_50**

**Lab Sample ID: 580-59828-3**

**Date Collected: 05/18/16 11:05**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>3700</b>		2000	44	mg/Kg			05/26/16 09:46	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>72.7</b>		0.1	0.1	%			05/25/16 12:47	1
<b>Percent Moisture</b>	<b>27.3</b>		0.1	0.1	%			05/25/16 12:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD003A-40\_50**

**Lab Sample ID: 580-59828-3**

**Date Collected: 05/18/16 11:05**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 72.7**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	29	H	6.9	3.3	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD003B-0\_10**

**Lab Sample ID: 580-59828-4**

**Date Collected: 05/18/16 11:10**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>3600</b>		2000	44	mg/Kg			05/26/16 09:51	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>78.4</b>		0.1	0.1	%			05/25/16 12:47	1
<b>Percent Moisture</b>	<b>21.6</b>		0.1	0.1	%			05/25/16 12:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD003B-0\_10**

**Lab Sample ID: 580-59828-4**

**Date Collected: 05/18/16 11:10**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 78.4**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	20	H	6.4	3.1	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD003B-40\_50**

**Lab Sample ID: 580-59828-5**

**Date Collected: 05/18/16 11:30**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>11000</b>		2000	44	mg/Kg			05/26/16 09:56	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>66.8</b>		0.1	0.1	%			05/25/16 12:47	1
<b>Percent Moisture</b>	<b>33.2</b>		0.1	0.1	%			05/25/16 12:47	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD003B-40\_50**

**Lab Sample ID: 580-59828-5**

**Date Collected: 05/18/16 11:30**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 66.8**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	47	H	7.5	3.6	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD002A-0\_10**

**Lab Sample ID: 580-59828-6**

**Date Collected: 05/18/16 12:00**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	9300		2000	44	mg/Kg			05/26/16 10:01	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	69.7		0.1	0.1	%			05/25/16 12:47	1
Percent Moisture	30.3		0.1	0.1	%			05/25/16 12:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD002A-0\_10**

**Lab Sample ID: 580-59828-6**

**Date Collected: 05/18/16 12:00**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 69.7**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	14	H	7.2	3.5	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

- 1
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# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD002A-36\_46**

**Lab Sample ID: 580-59828-7**

**Date Collected: 05/18/16 12:10**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>4200</b>		2000	44	mg/Kg			05/26/16 10:47	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>75.1</b>		0.1	0.1	%			05/25/16 12:47	1
<b>Percent Moisture</b>	<b>24.9</b>		0.1	0.1	%			05/25/16 12:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD002A-36\_46**

**Lab Sample ID: 580-59828-7**

**Date Collected: 05/18/16 12:10**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 75.1**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND	H	6.7	3.2	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD002B-0\_10**

**Lab Sample ID: 580-59828-8**

**Date Collected: 05/18/16 12:20**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>15000</b>		2000	44	mg/Kg			05/26/16 10:52	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>66.5</b>		0.1	0.1	%			05/25/16 12:47	1
<b>Percent Moisture</b>	<b>33.5</b>		0.1	0.1	%			05/25/16 12:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD002B-0\_10**

**Lab Sample ID: 580-59828-8**

**Date Collected: 05/18/16 12:20**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 66.5**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	250	H	7.5	3.6	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

- 1
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# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD002B-40\_50**

**Lab Sample ID: 580-59828-9**

**Date Collected: 05/18/16 12:30**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>9900</b>		2000	44	mg/Kg			05/26/16 10:57	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>71.5</b>		0.1	0.1	%			05/25/16 12:47	1
<b>Percent Moisture</b>	<b>28.5</b>		0.1	0.1	%			05/25/16 12:47	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD002B-40\_50**

**Lab Sample ID: 580-59828-9**

**Date Collected: 05/18/16 12:30**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 71.5**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	16	H	7.0	3.4	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD001A-0\_10**

**Lab Sample ID: 580-59828-10**

**Date Collected: 05/18/16 12:40**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>5700</b>		2000	44	mg/Kg			05/26/16 11:02	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>70.6</b>		0.1	0.1	%			05/25/16 12:47	1
<b>Percent Moisture</b>	<b>29.4</b>		0.1	0.1	%			05/25/16 12:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD001A-0\_10**

**Lab Sample ID: 580-59828-10**

**Date Collected: 05/18/16 12:40**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 70.6**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	110	H	7.1	3.4	mg/Kg	☼	06/01/16 16:38	06/01/16 18:17	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD001A-40\_50**

**Lab Sample ID: 580-59828-11**

**Date Collected: 05/18/16 12:45**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>4800</b>		2000	44	mg/Kg			05/26/16 11:07	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>75.1</b>		0.1	0.1	%			05/25/16 12:47	1
<b>Percent Moisture</b>	<b>24.9</b>		0.1	0.1	%			05/25/16 12:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD001A-40\_50**

**Lab Sample ID: 580-59828-11**

**Date Collected: 05/18/16 12:45**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 75.1**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	98	H	6.6	3.2	mg/Kg	☼	06/02/16 18:23	06/02/16 20:09	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD001B-0\_10**

**Lab Sample ID: 580-59828-12**

**Date Collected: 05/18/16 12:50**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>10000</b>		2000	44	mg/Kg			05/26/16 11:12	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>70.5</b>		0.1	0.1	%			05/25/16 12:47	1
<b>Percent Moisture</b>	<b>29.5</b>		0.1	0.1	%			05/25/16 12:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD001B-0\_10**

**Lab Sample ID: 580-59828-12**

**Date Collected: 05/18/16 12:50**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 70.5**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	47	H	7.1	3.4	mg/Kg	☼	06/02/16 18:23	06/02/16 20:09	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD001B-40\_50**

**Lab Sample ID: 580-59828-13**

**Date Collected: 05/18/16 12:55**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>22000</b>		2000	44	mg/Kg			05/26/16 11:17	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Solids</b>	<b>37.1</b>		0.1	0.1	%			05/25/16 12:47	1
<b>Percent Moisture</b>	<b>62.9</b>		0.1	0.1	%			05/25/16 12:47	1

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# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD001B-40\_50**

**Lab Sample ID: 580-59828-13**

**Date Collected: 05/18/16 12:55**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 37.1**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND	H	13	6.5	mg/Kg	☼	06/02/16 18:23	06/02/16 20:09	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD004A-40\_50**

**Lab Sample ID: 580-59828-14**

**Date Collected: 05/18/16 13:40**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.06				SU			05/28/16 10:50	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	8400		2000	44	mg/Kg			05/26/16 11:22	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	68.1		0.1	0.1	%			05/25/16 12:47	1
Percent Moisture	31.9		0.1	0.1	%			05/25/16 12:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD004A-40\_50**

**Lab Sample ID: 580-59828-14**

**Date Collected: 05/18/16 13:40**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 68.1**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.018	J*	0.027	0.0067	mg/Kg	☼	05/26/16 12:37	05/31/16 15:17	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,4,6-Tribromophenol	102		28 - 143				05/26/16 12:37	05/31/16 15:17	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	43	H	7.3	3.5	mg/Kg	☼	06/02/16 18:23	06/02/16 20:09	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD004B-40\_50**

**Lab Sample ID: 580-59828-15**

**Date Collected: 05/18/16 13:45**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.76				SU			05/28/16 10:51	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	4900		2000	44	mg/Kg			05/26/16 11:28	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	71.9		0.1	0.1	%			05/25/16 12:47	1
Percent Moisture	28.1		0.1	0.1	%			05/25/16 12:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD004B-40\_50**

**Lab Sample ID: 580-59828-15**

**Date Collected: 05/18/16 13:45**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 71.9**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.015	J*	0.023	0.0058	mg/Kg	☼	05/26/16 12:37	05/31/16 15:39	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,4,6-Tribromophenol	105		28 - 143				05/26/16 12:37	05/31/16 15:39	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	41	H	6.9	3.3	mg/Kg	☼	06/02/16 18:23	06/02/16 20:09	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD004A-0\_10**

**Lab Sample ID: 580-59828-16**

**Date Collected: 05/18/16 13:50**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.05				SU			05/28/16 10:52	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	7300		2000	44	mg/Kg			05/26/16 11:33	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	72.3		0.1	0.1	%			05/25/16 12:47	1
Percent Moisture	27.7		0.1	0.1	%			05/25/16 12:47	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD004A-0\_10**

**Lab Sample ID: 580-59828-16**

**Date Collected: 05/18/16 13:50**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 72.3**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.016	J*	0.024	0.0059	mg/Kg	☼	05/26/16 12:37	05/31/16 16:02	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,4,6-Tribromophenol	104		28 - 143				05/26/16 12:37	05/31/16 16:02	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	64	H	6.9	3.3	mg/Kg	☼	06/02/16 18:23	06/02/16 20:09	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD004B-0\_10**

**Lab Sample ID: 580-59828-17**

**Date Collected: 05/20/16 00:01**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

## General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.43				SU			06/06/16 13:45	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	6200	H	2000	44	mg/Kg			06/08/16 15:46	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	71.4		0.1	0.1	%			06/08/16 11:47	1
Percent Moisture	28.6		0.1	0.1	%			06/08/16 11:47	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD004B-0\_10**

**Lab Sample ID: 580-59828-17**

**Date Collected: 05/20/16 00:01**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 71.4**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.018	J H	0.025	0.0063	mg/Kg	☼	06/07/16 09:10	06/07/16 15:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	89		28 - 143				06/07/16 09:10	06/07/16 15:20	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	11	H	7.0	3.4	mg/Kg	☼	06/15/16 13:09	06/15/16 18:23	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-218164/1-A**  
**Matrix: Solid**  
**Analysis Batch: 218387**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 218164**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.020	0.0050	mg/Kg		05/26/16 12:37	05/31/16 10:46	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	73		28 - 143				05/26/16 12:37	05/31/16 10:46	1

**Lab Sample ID: LCS 580-218164/2-A**  
**Matrix: Solid**  
**Analysis Batch: 218387**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 218164**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Pentachlorophenol	2.00	0.927		mg/Kg		46	45 - 117		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
2,4,6-Tribromophenol	95		28 - 143						

**Lab Sample ID: LCSD 580-218164/3-A**  
**Matrix: Solid**  
**Analysis Batch: 218387**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 218164**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	2.00	1.35	*	mg/Kg		67	45 - 117	37	23
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	102		28 - 143						

**Lab Sample ID: MB 580-219008/1-A**  
**Matrix: Solid**  
**Analysis Batch: 219022**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 219008**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.020	0.0050	mg/Kg		06/07/16 09:10	06/07/16 12:52	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	82		28 - 143				06/07/16 09:10	06/07/16 12:52	1

**Lab Sample ID: LCS 580-219008/2-A**  
**Matrix: Solid**  
**Analysis Batch: 219022**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 219008**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Pentachlorophenol	2.00	1.52		mg/Kg		76	45 - 117		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
2,4,6-Tribromophenol	93		28 - 143						

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCSD 580-219008/3-A**  
**Matrix: Solid**  
**Analysis Batch: 219022**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 219008**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	2.00	1.35		mg/Kg		67	45 - 117	12	23

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4,6-Tribromophenol	93		28 - 143

## Method: 9034 - Sulfide, Acid Soluble and Insoluble (Titrimetric)

**Lab Sample ID: MB 280-328007/6-A**  
**Matrix: Solid**  
**Analysis Batch: 328013**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 328007**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		5.0	2.4	mg/Kg		06/01/16 16:38	06/01/16 18:17	1

**Lab Sample ID: LCS 280-328007/5-A**  
**Matrix: Solid**  
**Analysis Batch: 328013**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 328007**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Sulfide	87.6	61.6		mg/Kg		70	38 - 104

**Lab Sample ID: MB 280-328203/3-A**  
**Matrix: Solid**  
**Analysis Batch: 328211**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 328203**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		5.0	2.4	mg/Kg		06/02/16 18:23	06/02/16 20:09	1

**Lab Sample ID: LCS 280-328203/1-A**  
**Matrix: Solid**  
**Analysis Batch: 328211**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 328203**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Sulfide	86.8	68.8		mg/Kg		79	38 - 104

**Lab Sample ID: LCSD 280-328203/2-A**  
**Matrix: Solid**  
**Analysis Batch: 328211**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 328203**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Sulfide	86.7	64.7		mg/Kg		75	38 - 104	6	35

**Lab Sample ID: MB 280-329939/2-A**  
**Matrix: Solid**  
**Analysis Batch: 329993**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 329939**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		5.0	2.4	mg/Kg		06/15/16 13:09	06/15/16 18:23	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

## Method: 9034 - Sulfide, Acid Soluble and Insoluble (Titrimetric) (Continued)

**Lab Sample ID: LCS 280-329939/1-A**  
**Matrix: Solid**  
**Analysis Batch: 329993**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 329939**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	107	96.0		mg/Kg		90	38 - 104

## Method: 9060\_PSEP - TOC (Puget Sound)

**Lab Sample ID: MB 580-218188/5**  
**Matrix: Solid**  
**Analysis Batch: 218188**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		2000	44	mg/Kg			05/26/16 08:41	1

**Lab Sample ID: LCS 580-218188/6**  
**Matrix: Solid**  
**Analysis Batch: 218188**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	4620	5430		mg/Kg		117	49 - 151

**Lab Sample ID: LCSD 580-218188/7**  
**Matrix: Solid**  
**Analysis Batch: 218188**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	4620	4770		mg/Kg		103	49 - 151	13	35

**Lab Sample ID: 580-59828-6 MS**  
**Matrix: Solid**  
**Analysis Batch: 218188**

**Client Sample ID: WCTSD002A-0\_10**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	9300		120000	121000		mg/Kg		93	50 - 140

**Lab Sample ID: 580-59828-6 MSD**  
**Matrix: Solid**  
**Analysis Batch: 218188**

**Client Sample ID: WCTSD002A-0\_10**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	9300		120000	121000		mg/Kg		93	50 - 140	0	35

**Lab Sample ID: 580-59828-6 DU**  
**Matrix: Solid**  
**Analysis Batch: 218188**

**Client Sample ID: WCTSD002A-0\_10**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	9300		120000	10400		mg/Kg				11	50

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

## Method: 9060\_PSEP - TOC (Puget Sound) (Continued)

**Lab Sample ID: 580-59828-6 DU**  
**Matrix: Solid**  
**Analysis Batch: 218188**

**Client Sample ID: WCTSD002A-0\_10**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Organic Carbon - Duplicates	9300		10000		mg/Kg		8	50

**Lab Sample ID: MB 580-219253/5**  
**Matrix: Solid**  
**Analysis Batch: 219253**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		2000	44	mg/Kg			06/08/16 15:38	1

**Lab Sample ID: LCS 580-219253/6**  
**Matrix: Solid**  
**Analysis Batch: 219253**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	4620	4810		mg/Kg		104	49 - 151

**Lab Sample ID: LCSD 580-219253/7**  
**Matrix: Solid**  
**Analysis Batch: 219253**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Total Organic Carbon - Duplicates	4620	4550		mg/Kg		99	49 - 151	6	35

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: TPS001TB-12\_13**

**Lab Sample ID: 580-59828-1**

**Date Collected: 05/18/16 09:20**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218314	05/28/16 10:49	Z1T	TAL SEA
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 09:37	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: TPS001TB-12\_13**

**Lab Sample ID: 580-59828-1**

**Date Collected: 05/18/16 09:20**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 74.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			218164	05/26/16 12:37	CJZ	TAL SEA
Total/NA	Analysis	8270D SIM		1	218387	05/31/16 14:54	D1R	TAL SEA

**Client Sample ID: WCTSD003A-0\_10**

**Lab Sample ID: 580-59828-2**

**Date Collected: 05/18/16 11:00**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 09:41	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: WCTSD003A-0\_10**

**Lab Sample ID: 580-59828-2**

**Date Collected: 05/18/16 11:00**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 74.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: WCTSD003A-40\_50**

**Lab Sample ID: 580-59828-3**

**Date Collected: 05/18/16 11:05**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 09:46	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: WCTSD003A-40\_50**

**Lab Sample ID: 580-59828-3**

**Date Collected: 05/18/16 11:05**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 72.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD003A-40\_50**

**Lab Sample ID: 580-59828-3**

**Date Collected: 05/18/16 11:05**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 72.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: WCTSD003B-0\_10**

**Lab Sample ID: 580-59828-4**

**Date Collected: 05/18/16 11:10**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 09:51	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: WCTSD003B-0\_10**

**Lab Sample ID: 580-59828-4**

**Date Collected: 05/18/16 11:10**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 78.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: WCTSD003B-40\_50**

**Lab Sample ID: 580-59828-5**

**Date Collected: 05/18/16 11:30**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 09:56	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: WCTSD003B-40\_50**

**Lab Sample ID: 580-59828-5**

**Date Collected: 05/18/16 11:30**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 66.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: WCTSD002A-0\_10**

**Lab Sample ID: 580-59828-6**

**Date Collected: 05/18/16 12:00**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 10:01	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD002A-0\_10**

**Lab Sample ID: 580-59828-6**

**Date Collected: 05/18/16 12:00**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 69.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: WCTSD002A-36\_46**

**Lab Sample ID: 580-59828-7**

**Date Collected: 05/18/16 12:10**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 10:47	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: WCTSD002A-36\_46**

**Lab Sample ID: 580-59828-7**

**Date Collected: 05/18/16 12:10**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 75.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: WCTSD002B-0\_10**

**Lab Sample ID: 580-59828-8**

**Date Collected: 05/18/16 12:20**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 10:52	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: WCTSD002B-0\_10**

**Lab Sample ID: 580-59828-8**

**Date Collected: 05/18/16 12:20**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 66.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: WCTSD002B-40\_50**

**Lab Sample ID: 580-59828-9**

**Date Collected: 05/18/16 12:30**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 10:57	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

TestAmerica Seattle



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD002B-40\_50**

**Lab Sample ID: 580-59828-9**

Date Collected: 05/18/16 12:30

Matrix: Solid

Date Received: 05/24/16 09:25

Percent Solids: 71.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: WCTSD001A-0\_10**

**Lab Sample ID: 580-59828-10**

Date Collected: 05/18/16 12:40

Matrix: Solid

Date Received: 05/24/16 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 11:02	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: WCTSD001A-0\_10**

**Lab Sample ID: 580-59828-10**

Date Collected: 05/18/16 12:40

Matrix: Solid

Date Received: 05/24/16 09:25

Percent Solids: 70.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328007	06/01/16 16:38	WTW	TAL DEN
Total/NA	Analysis	9034		1	328013	06/01/16 18:17	WTW	TAL DEN

**Client Sample ID: WCTSD001A-40\_50**

**Lab Sample ID: 580-59828-11**

Date Collected: 05/18/16 12:45

Matrix: Solid

Date Received: 05/24/16 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 11:07	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: WCTSD001A-40\_50**

**Lab Sample ID: 580-59828-11**

Date Collected: 05/18/16 12:45

Matrix: Solid

Date Received: 05/24/16 09:25

Percent Solids: 75.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328203	06/02/16 18:23	KAM	TAL DEN
Total/NA	Analysis	9034		1	328211	06/02/16 20:09	KAM	TAL DEN

**Client Sample ID: WCTSD001B-0\_10**

**Lab Sample ID: 580-59828-12**

Date Collected: 05/18/16 12:50

Matrix: Solid

Date Received: 05/24/16 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 11:12	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD001B-0\_10**

**Lab Sample ID: 580-59828-12**

**Date Collected: 05/18/16 12:50**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 70.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328203	06/02/16 18:23	KAM	TAL DEN
Total/NA	Analysis	9034		1	328211	06/02/16 20:09	KAM	TAL DEN

**Client Sample ID: WCTSD001B-40\_50**

**Lab Sample ID: 580-59828-13**

**Date Collected: 05/18/16 12:55**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 11:17	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: WCTSD001B-40\_50**

**Lab Sample ID: 580-59828-13**

**Date Collected: 05/18/16 12:55**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 37.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			328203	06/02/16 18:23	KAM	TAL DEN
Total/NA	Analysis	9034		1	328211	06/02/16 20:09	KAM	TAL DEN

**Client Sample ID: WCTSD004A-40\_50**

**Lab Sample ID: 580-59828-14**

**Date Collected: 05/18/16 13:40**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218314	05/28/16 10:50	Z1T	TAL SEA
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 11:22	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: WCTSD004A-40\_50**

**Lab Sample ID: 580-59828-14**

**Date Collected: 05/18/16 13:40**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 68.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			218164	05/26/16 12:37	CJZ	TAL SEA
Total/NA	Analysis	8270D SIM		1	218387	05/31/16 15:17	D1R	TAL SEA
Total/NA	Prep	9030B			328203	06/02/16 18:23	KAM	TAL DEN
Total/NA	Analysis	9034		1	328211	06/02/16 20:09	KAM	TAL DEN

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD004B-40\_50**

**Lab Sample ID: 580-59828-15**

**Date Collected: 05/18/16 13:45**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218314	05/28/16 10:51	Z1T	TAL SEA
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 11:28	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: WCTSD004B-40\_50**

**Lab Sample ID: 580-59828-15**

**Date Collected: 05/18/16 13:45**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 71.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			218164	05/26/16 12:37	CJZ	TAL SEA
Total/NA	Analysis	8270D SIM		1	218387	05/31/16 15:39	D1R	TAL SEA
Total/NA	Prep	9030B			328203	06/02/16 18:23	KAM	TAL DEN
Total/NA	Analysis	9034		1	328211	06/02/16 20:09	KAM	TAL DEN

**Client Sample ID: WCTSD004A-0\_10**

**Lab Sample ID: 580-59828-16**

**Date Collected: 05/18/16 13:50**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218314	05/28/16 10:52	Z1T	TAL SEA
Total/NA	Analysis	9060_PSEP		1	218188	05/26/16 11:33	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	218061	05/25/16 12:47	J1J	TAL SEA

**Client Sample ID: WCTSD004A-0\_10**

**Lab Sample ID: 580-59828-16**

**Date Collected: 05/18/16 13:50**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 72.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			218164	05/26/16 12:37	CJZ	TAL SEA
Total/NA	Analysis	8270D SIM		1	218387	05/31/16 16:02	D1R	TAL SEA
Total/NA	Prep	9030B			328203	06/02/16 18:23	KAM	TAL DEN
Total/NA	Analysis	9034		1	328211	06/02/16 20:09	KAM	TAL DEN

**Client Sample ID: WCTSD004B-0\_10**

**Lab Sample ID: 580-59828-17**

**Date Collected: 05/20/16 00:01**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	218915	06/06/16 13:45	L1I	TAL SEA
Total/NA	Analysis	9060_PSEP		1	219253	06/08/16 15:46	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	219174	06/08/16 11:47	CBS	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

**Client Sample ID: WCTSD004B-0\_10**

**Lab Sample ID: 580-59828-17**

**Date Collected: 05/20/16 00:01**

**Matrix: Solid**

**Date Received: 05/24/16 09:25**

**Percent Solids: 71.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			219008	06/07/16 09:10	CBS	TAL SEA
Total/NA	Analysis	8270D SIM		1	219022	06/07/16 15:20	ERZ	TAL SEA
Total/NA	Prep	9030B			329939	06/15/16 13:09	WTW	TAL DEN
Total/NA	Analysis	9034		1	329993	06/15/16 18:23	WTW	TAL DEN

## Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9045D		Solid	pH
9060_PSEP		Solid	Total Organic Carbon - Duplicates
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

Analysis Method	Prep Method	Matrix	Analyte
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# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59828-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59828-1	TPS001TB-12_13	Solid	05/18/16 09:20	05/24/16 09:25
580-59828-2	WCTSD003A-0_10	Solid	05/18/16 11:00	05/24/16 09:25
580-59828-3	WCTSD003A-40_50	Solid	05/18/16 11:05	05/24/16 09:25
580-59828-4	WCTSD003B-0_10	Solid	05/18/16 11:10	05/24/16 09:25
580-59828-5	WCTSD003B-40_50	Solid	05/18/16 11:30	05/24/16 09:25
580-59828-6	WCTSD002A-0_10	Solid	05/18/16 12:00	05/24/16 09:25
580-59828-7	WCTSD002A-36_46	Solid	05/18/16 12:10	05/24/16 09:25
580-59828-8	WCTSD002B-0_10	Solid	05/18/16 12:20	05/24/16 09:25
580-59828-9	WCTSD002B-40_50	Solid	05/18/16 12:30	05/24/16 09:25
580-59828-10	WCTSD001A-0_10	Solid	05/18/16 12:40	05/24/16 09:25
580-59828-11	WCTSD001A-40_50	Solid	05/18/16 12:45	05/24/16 09:25
580-59828-12	WCTSD001B-0_10	Solid	05/18/16 12:50	05/24/16 09:25
580-59828-13	WCTSD001B-40_50	Solid	05/18/16 12:55	05/24/16 09:25
580-59828-14	WCTSD004A-40_50	Solid	05/18/16 13:40	05/24/16 09:25
580-59828-15	WCTSD004B-40_50	Solid	05/18/16 13:45	05/24/16 09:25
580-59828-16	WCTSD004A-0_10	Solid	05/18/16 13:50	05/24/16 09:25
580-59828-17	WCTSD004B-0_10	Solid	05/20/16 00:01	05/24/16 09:25



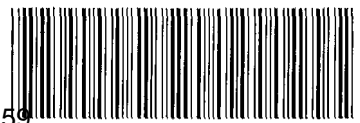
55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

Page 1 of 2

Field Sampler(s):  
GSI

### Chain of Custody Record

<b>Client Contact</b>		<b>For Lab Use Only:</b>				<b>Laboratory</b>										<b>Lab PM</b>				
Project Name: Parcel 15 - POT		SDG: _____				Brooks Applied Labs					TestAmerica					Brooks - Ben Wozniak- 206-753-6158				
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No				Analysis Requested														
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No				Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III/As(V))	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)**	TestAmerica - Christabel Escarez- 253.248.4975
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																		
Report to email: e.hughes@gaiws.com, c.ryals@gaiws.com		Therm ID No.: _____ Therm Exp. _____																		
Analysis Turnaround Time:																				
<input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *		21 days (STD) <i>see contract</i>																		
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.														
<del>BB</del> TPS001TB-12-13		5/18/16	9:20		soil	1	X	X	X	X			X	X	X					
WCTSD004B-0-10-90		5/18/16	10:15		sed.	1	X	X	X	X			X	X	X		X			
WCTSD003A-0-10		5/18/16	11:00		sed	1	X	X	X	X			X	X			X			
WCTSD003A-40-50		5/18/16	11:05		sed	1	X	X	X	X			X	X			X			
WCTSD003B-0-10		5/18/16	11:10		sed	1	X	X	X	X			X	X			X			
WCTSD003B-40-50		5/18/16	11:30		sed	1	X	X	X	X			X	X			X			
WCTSD002A-0-10			12:00			1	X	X	X	X			X	X			X			
WCTSD002A-36-46			12:10			1	X	X	X	X			X	X			X			
WCTSD002B-0-10			12:20			1	X	X	X	X			X	X			X			
WCTSD002B-40-50			12:30			1	X	X	X	X			X	X			X			
WCTSD001A-0-10			12:40			1	X	X	X	X			X	X			X			
WCTSD001A-40-50			12:45			1	X	X	X	X			X	X			X			
WCTSD001B-0-10		✓	12:50		↓	1	X	X	X	X			X	X			X			
<b>Possible Hazard Identification:</b>					<b>Sample Disposal</b> (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)															
Are samples hazardous? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input checked="" type="checkbox"/> Archive for 1 yr + contact GSI															
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic																				
If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.																				
Received by: <i>Chris Park</i>		Date/Time: 5/20/16 8:15am			Relinquished by: <i>Yanni Torres</i> GSI								Date/Time: 5/20/16 8:15							
Received by: <i>Chris Park</i>		Date/Time: 5/24/16 04:25			Relinquished by: <i>Chris Park</i>								Date/Time: 5/20/16 9:56							
Received in Laboratory by: <i>Chris Park</i>		Date/Time: 5/20/16 9:30			Shipped Via: <input checked="" type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other								Tracking #: _____							
<b>Special Instructions/QC Requirements</b>					59828 - 5/20/16 8:30															
* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.																				
** Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future																				
*** Sample cores have been packaged anoxically and will be held under frozen archival at Test America																				
Please contact Cindy Ryals at 971-200-8531 with any questions.																				



TB Cooler JR2Cor6.4 Unc6.7  
Cooler Dsc Lg Grey @Lab 1/20  
Wet/Packs Packing 6/16/2016  
w/lc



65 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

page 2 of 2

# Chain of Custody Record

Field Sampler(s):  
 GSI

<b>Client Contact</b>		<b>For Lab Use Only:</b>				<b>Laboratory</b>										<b>Lab PM</b>				
Project Name: Parcel 15 - POT		SDG: _____				Brooks Applied Labs					TestAmerica					Brooks - Ben Wozniak - 206-753-6158				
Project # or PO #: 603.002.010		Custody Seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No				Analysis Requested														
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No				Anoxic Homogenization*	Arsenic	Iron	Total Solids	Arsenic Speciation - As (III)/As(V)	Sequential Extraction	Batch Adsorption	Archive (frozen)**	Total Organic Carbon	Pentachlorophenol and pH	Dioxin/Furans	Sulfide	Grain Size	Archive Only (Frozen)***	Sample Specific Notes:
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																		
Report to email: e.hughes@gslws.com, c.ryals@gslws.com		Therm ID No.: _____ Therm Exp. _____																		
Analysis Turnaround Time: <input type="checkbox"/> 21 days (STD)																				
<input type="checkbox"/> 14 days * <input type="checkbox"/> 7 days * <input type="checkbox"/> 5 days * <input type="checkbox"/> 3 day * <input type="checkbox"/> 3 day * <input type="checkbox"/> 2 days * <input type="checkbox"/> 1 day *		See Contract																		
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, S=Grab)	Matrix	Total # of Cont.														
WCTSD001B-40-50		5/18/16	1255	G	sed	1	X	X	X	X			X	X			X			
WCTSD004A-40-50		↓	1340	↓	↓	↓	X	X	X	X			X	X	X		X			
WCTSD004B-40-50		↓	1345	↓	↓	↓	X	X	X	X			X	X	X		X			
WCTSD004A-0-10		↓	1350	↓	↓	↓	X	X	X	X			X	X	X		X			

**Possible Hazard Identification:**  
 Are samples hazardous?  Yes  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 If YES or NO is not checked above, samples will be assumed hazardous and hazardous disposal fees will be applied.

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client     Disposal by Lab     Archive for 1yr + contact GSI

Received by: <i>Erin Hughes</i>	Date/Time: 5/20/16 8:15 am	Relinquished by: <i>Ben Wozniak</i>	Date/Time: 5/20/16 8:15
Received by: <i>[Signature]</i>	Date/Time: 5/24/16 0925	Relinquished by: <i>[Signature]</i>	Date/Time: 5/20/16 9:56 am
Received in Laboratory by: <i>[Signature]</i>	Date/Time: 5/20/16 9:30	Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input checked="" type="checkbox"/> Other	Tracking #: _____

**Special Instructions/QC Requirements**  
 \* Brooks analytical to homogenize sediment anoxically in a glove box and provide aliquotes for analysis at Brooks and Test America.  
 \*\* Brooks to archive approximately 8 oz of extra homogenized soil/sediment frozen for potential future analysis.  
 \*\*\* Sample cores have been packaged anoxically and will be held under frozen archival at Test America for potential future analysis.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

8 am    5/24/16 8:30



**Chain of Custody Record**

<b>Client Information (Sub Contract Lab)</b>		Lab PM: Escarez, Christabel C		Carrier Tracking No(s):					
Client Contact: Shipping/Receiving		Phone: christabel.escarez@testamericainc.com		COC No: 580-38683-1					
Company: TestAmerica Laboratories, Inc.		E-Mail:		Page: 1 of 2					
Address: 4955 Yarrow Street		Due Date Requested: 6/9/2016		Job #: 580-59828-1					
City: Arvada		TAT Requested (days):		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 G - Anchor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:					
State, Zip: CO, 80002		PO #:		Total Number of Containers					
Phone: 303-736-0100(Tel) 303-431-7171(Fax)		WO #:		Special Instructions/Note:					
Email:		Project #: 58009703							
Parcel 15 RI		SSOW#:							
Site:									
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (W=water, S=solid, O=wasteoil, BT=Tissue, A=air)	Field Filtered Sample (Yes or No)	Form (S/MBP, C/NO)	9034/903B	Analysis Requested	Carrier Tracking No(s)
WCTSD003A-0_10 (580-59828-2)	5/18/16	11:00 Pacific	Solid	Solid	X	X	X		
WCTSD003A-40_50 (580-59828-3)	5/18/16	11:05 Pacific	Solid	Solid	X	X	X		
WCTSD003B-0_10 (580-59828-4)	5/18/16	11:10 Pacific	Solid	Solid	X	X	X		
WCTSD003B-40_50 (580-59828-5)	5/18/16	11:30 Pacific	Solid	Solid	X	X	X		
WCTSD002A-0_10 (580-59828-6)	5/18/16	12:00 Pacific	Solid	Solid	X	X	X		
WCTSD002A-36_46 (580-59828-7)	5/18/16	12:10 Pacific	Solid	Solid	X	X	X		
WCTSD002B-0_10 (580-59828-8)	5/18/16	12:20 Pacific	Solid	Solid	X	X	X		
WCTSD002B-40_50 (580-59828-9)	5/18/16	12:30 Pacific	Solid	Solid	X	X	X		
WCTSD001A-0_10 (580-59828-10)	5/18/16	12:40 Pacific	Solid	Solid	X	X	X		
WCTSD001A-40_50 (580-59828-11)	5/18/16	12:45 Pacific	Solid	Solid	X	X	X		
WCTSD001B-0_10 (580-59828-12)	5/18/16	12:50 Pacific	Solid	Solid	X	X	X		
<b>Possible Hazard Identification</b>									
Unconfirmed									
Deliverable Requested: I, II, III, IV, Other (specify)									
Special Instructions/QC Requirements:									
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Empty Kit Relinquished by:									
Relinquished by: <i>B. Axel</i> Date: <i>5-25-16</i> Time: _____									
Relinquished by: _____ Date/Time: _____									
Relinquished by: _____ Date/Time: _____									
Custody Seal No.: _____									
Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No									
Cooler Temperature(s) °C and Other Remarks: <i>21.5 DO #5 +0.0 Transferred by RB 5-28-16</i>									

# Chain of Custody Record

<b>Client Information (Sub Contract Lab)</b>		Sampler: Escarez, Christabel C		Carrier Tracking No(s):		COC No: 580-38663.2	
Client Contact: Shipping/Receiving		E-Mail: christabel.escarez@testamericainc.com		Page: Page 2 of 2		Job #: 580-59828-1	
Company: TestAmerica Laboratories, Inc.		Due Date Requested: 6/9/2016		TAT Requested (days):		Preservation Codes:	
Address: 4955 Yarrow Street, Arvada		PO #:		WO #:		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - Ascorbic Acid T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 X - EDTA Y - EDTA Z - other (specify)	
Project Name: Parcel 15 R1		Project #: 58009703		SSOW#:		Other:	
Site:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Special Instructions (Note):	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=comp, G=grab)	
Matrix (W=water, S=solid, O=wastefoil, BT=Tissue, A=air)		Preservation Code		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)	
WCTSD001B-40_50 (580-59828-13)		5/18/16		12:55 Pacific		Solid	
WCTSD004A-40_50 (580-59828-14)		5/18/16		13:40 Pacific		Solid	
WCTSD004B-40_50 (580-59828-15)		5/18/16		13:45 Pacific		Solid	
WCTSD004A-0_10 (580-59828-16)		5/18/16		13:50 Pacific		Solid	
Possible Hazard Identification		Date:		Time:		Method of Shipment:	
Unconfirmed		Date/Time: 5-25-16 1340		Date/Time: 5-26-16 0920		Company: TAD	
Deliverable Requested: I, II, III, IV, Other (specify)		Date/Time:		Date/Time:		Company:	
Empty Kit Relinquished by:		Date/Time:		Date/Time:		Company:	
Relinquished by: B. Stoll		Date/Time:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Date/Time:		Company:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		Special Instructions/QC Requirements:	

### Chain of Custody Record

<b>Client Information (Sub Contract Lab)</b> Client Contact: Escarez, Christabel C Shipping/Receiving: christabel.escarez@testamericainc.com Company: TestAmerica Laboratories, Inc.		Sampler: Escarez, Christabel C Lab P#: E-Mail: christabel.escarez@testamericainc.com		Carrier Tracking No(s): COC No: 580-38877.1 Page: Page 1 of 1 Job #: 580-59828-1	
Address: 4955 Yarrow Street, City: Arvada State, Zip: CO, 80002 Phone: 303-736-0100(Tel) 303-431-7171(Fax) Email:		<b>Analysis Requested</b> Due Date Requested: 6/9/2016 TAT Requested (days): PO #: WO #: Project #: 58009703 SSON#:		Preservation Codes: M - Hexane N - None O - AsNaO2 P - NaZOS Q - NaZSO3 R - NaZSO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 L - EDTA Z - other (specify) Other:	
Sample Identification - Client ID (Lab ID) WCTSD004B-0_10 (580-59828-17)		Matrix (W=water, S=solid, O=wastewater, L=leachate, A=air) Sample Type (C=Comp, G=grab) (See Preservation Codes) Sample Date Time: 5/20/16 00:01 Pacific Sample Date: 5/20/16 Sample Time: 00:01 Pacific		Total Number of Containers: <input checked="" type="checkbox"/> X Field Filtered Sample (Yes or No): <input checked="" type="checkbox"/> X Perform MS/MS (Yes or No): <input checked="" type="checkbox"/> X Special Instructions/Note:	
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/QC Requirements:					
Empty Kit Relinquished by: _____ Date: _____ Relinquished by: Tom Blantz Date: 6/6/16 Company: TA-Sea Relinquished by: _____ Date/Time: _____ Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____ Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: O.G. JE#5-10.0 Transferred by RP 6-7-16					



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59828-1

**Login Number: 59828**

**List Number: 1**

**Creator: Gall, Brandon A**

**List Source: TestAmerica Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59828-1

**Login Number: 59828**  
**List Number: 2**  
**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**  
**List Creation: 05/26/16 04:00 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59828-1

**Login Number: 59828**  
**List Number: 3**  
**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**  
**List Creation: 06/07/16 01:34 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59955-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/17/2016 3:07:06 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
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Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Job ID: 580-59955-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-59955-1

#### Receipt

The samples were received on 6/1/2016 8:00 AM; the samples arrived in good condition, properly preserved, and on ice. The temperatures of the 2 coolers at receipt time were 4.8° C and 5.6° C.

#### GC/MS Semi VOA

Method(s) 8270D SIM: The following samples were diluted due to the nature of the sample matrix: MW005R-E1 (580-59955-1), MW006R-E1 (580-59955-2), MW003-E1 (580-59955-4), MW503-E1 (580-59955-5), MW002R-E1 (580-59955-6) and MW001-E1 (580-59955-10). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0: The method blank for analytical batch 580-218658 contained Chloride above the method detection limit (MDL). This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW005R-E1**

**Lab Sample ID: 580-59955-1**

**Date Collected: 05/31/16 13:55**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	7.1		2.1	1.4	ug/L		06/01/16 12:36	06/04/16 16:04	100
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	74		44 - 125				06/01/16 12:36	06/04/16 16:04	100

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.50	HF			SU			06/02/16 12:51	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	29		10	1.9	mg/L			06/08/16 08:27	10

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	0.14		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	26		10	1.9	mg/L			06/06/16 16:12	10

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW006R-E1**

**Lab Sample ID: 580-59955-2**

**Date Collected: 05/31/16 14:10**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	1.0		0.21	0.14	ug/L		06/01/16 12:36	06/04/16 16:27	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	102		44 - 125				06/01/16 12:36	06/04/16 16:27	10

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.41	HF			SU			06/02/16 12:54	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	23		10	1.9	mg/L			06/08/16 08:27	10

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	0.0099	J	0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	24		10	1.9	mg/L			06/06/16 16:12	10

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW506R-E1**

**Lab Sample ID: 580-59955-3**

Date Collected: 05/31/16 14:10

Matrix: Water

Date Received: 06/01/16 10:11

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	24		10	1.9	mg/L			06/08/16 08:27	10

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	0.012	J	0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	24		10	1.9	mg/L			06/06/16 16:12	10

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW003-E1**

**Lab Sample ID: 580-59955-4**

**Date Collected: 05/31/16 16:20**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.89		0.23	0.15	ug/L		06/01/16 12:36	06/04/16 16:50	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
2,4,6-Tribromophenol	83		44 - 125				06/01/16 12:36	06/04/16 16:50	10

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13		5.0	1.4	ug/L		06/10/16 08:38	06/10/16 17:21	5

**Method: 6020A - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12		5.0	1.4	ug/L		06/16/16 14:05	06/17/16 12:37	5
Iron	51000		200	29	ug/L		06/16/16 14:05	06/17/16 12:37	5
Manganese	1700		10	1.8	ug/L		06/16/16 14:05	06/17/16 12:37	5

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.74	HF			SU			06/02/16 12:23	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	38		10	1.9	mg/L			06/08/16 08:27	10

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.91		0.20	0.030	mg/L			06/01/16 16:06	1
Nitrite as N	ND		0.40	0.080	mg/L			06/01/16 16:06	1
Chloride	23	B	0.90	0.040	mg/L			06/01/16 16:06	1
Nitrate as N	ND		0.20	0.020	mg/L			06/01/16 16:06	1
Bromide	ND		0.50	0.060	mg/L			06/01/16 16:06	1
Sulfate	0.73	J	1.2	0.26	mg/L			06/01/16 16:06	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	40		10	1.9	mg/L			06/06/16 16:12	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	1.3		0.10	0.10	mg/L			06/01/16 11:17	1
Bicarbonate Alkalinity as CaCO3	330		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
Alkalinity	330		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW503-E1**

**Lab Sample ID: 580-59955-5**

**Date Collected: 05/31/16 16:30**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.86		0.24	0.16	ug/L		06/01/16 12:36	06/04/16 17:12	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	71		44 - 125				06/01/16 12:36	06/04/16 17:12	10

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.68	HF			SU			06/02/16 12:27	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	38		10	1.9	mg/L			06/08/16 08:27	10

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.90		0.20	0.030	mg/L			06/01/16 16:20	1
Nitrite as N	ND		0.40	0.080	mg/L			06/01/16 16:20	1
Chloride	23	B	0.90	0.040	mg/L			06/01/16 16:20	1
Nitrate as N	ND		0.20	0.020	mg/L			06/01/16 16:20	1
Bromide	ND		0.50	0.060	mg/L			06/01/16 16:20	1
Sulfate	0.76	J	1.2	0.26	mg/L			06/01/16 16:20	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	40		10	1.9	mg/L			06/06/16 22:37	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	1.4		0.10	0.10	mg/L			06/01/16 11:17	1
Bicarbonate Alkalinity as CaCO3	330		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
Alkalinity	330		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW002R-E1**

**Lab Sample ID: 580-59955-6**

**Date Collected: 05/31/16 16:30**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	18		2.1	1.4	ug/L		06/01/16 12:36	06/04/16 17:35	100
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	67		44 - 125				06/01/16 12:36	06/04/16 17:35	100

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	11.6	HF			SU			06/02/16 12:30	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	8.7		1.0	0.19	mg/L			06/08/16 08:32	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.090	J	0.20	0.030	mg/L			06/01/16 16:34	1
Nitrite as N	ND		0.40	0.080	mg/L			06/01/16 16:34	1
Chloride	3.9	B	0.90	0.040	mg/L			06/01/16 16:34	1
Nitrate as N	ND		0.20	0.020	mg/L			06/01/16 16:34	1
Bromide	ND		0.50	0.060	mg/L			06/01/16 16:34	1
Sulfate	16		1.2	0.26	mg/L			06/01/16 16:34	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	7.9		1.0	0.19	mg/L			06/08/16 06:53	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.11		0.10	0.10	mg/L			06/01/16 11:17	1
Bicarbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	56		5.0	5.0	mg/L			06/02/16 18:14	1
Alkalinity	210		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	150		5.0	5.0	mg/L			06/02/16 18:14	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW004-E1**

**Lab Sample ID: 580-59955-7**

**Date Collected: 05/31/16 18:45**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.41		0.020	0.014	ug/L		06/01/16 12:36	06/04/16 15:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	84		44 - 125				06/01/16 12:36	06/04/16 15:41	1

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.20	HF			SU			06/02/16 12:37	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	5.2		1.0	0.19	mg/L			06/08/16 08:44	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.12	J	0.20	0.030	mg/L			06/01/16 16:49	1
Nitrite as N	ND		0.40	0.080	mg/L			06/01/16 16:49	1
Chloride	11	B	0.90	0.040	mg/L			06/01/16 16:49	1
Nitrate as N	ND		0.20	0.020	mg/L			06/01/16 16:49	1
Bromide	ND		0.50	0.060	mg/L			06/01/16 16:49	1
Sulfate	3.6		1.2	0.26	mg/L			06/01/16 16:49	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	5.5		1.0	0.19	mg/L			06/08/16 06:53	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/01/16 11:17	1
Bicarbonate Alkalinity as CaCO3	77		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
Alkalinity	77		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: B003R-E1**

**Lab Sample ID: 580-59955-8**

**Date Collected: 05/31/16 18:10**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	50		10	1.9	mg/L			06/08/16 08:42	10

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	0.022	J	0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	51		10	1.9	mg/L			06/06/16 22:37	10



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW011-E1**

**Lab Sample ID: 580-59955-9**

**Date Collected: 05/31/16 15:40**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	67		10	1.9	mg/L			06/08/16 08:42	10

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	70		10	1.9	mg/L			06/06/16 22:37	10



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW001-E1**

**Lab Sample ID: 580-59955-10**

**Date Collected: 05/31/16 18:55**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.78		0.22	0.15	ug/L		06/01/16 12:36	06/04/16 17:58	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	96		44 - 125				06/01/16 12:36	06/04/16 17:58	10

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.58	HF			SU			06/02/16 12:46	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	52		10	1.9	mg/L			06/08/16 08:42	10

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			06/01/16 17:03	1
Nitrite as N	ND		0.40	0.080	mg/L			06/01/16 17:03	1
Chloride	38	B	0.90	0.040	mg/L			06/01/16 17:03	1
Nitrate as N	ND		0.20	0.020	mg/L			06/01/16 17:03	1
Bromide	ND		0.50	0.060	mg/L			06/01/16 17:03	1
Sulfate	0.81	J	1.2	0.26	mg/L			06/01/16 17:03	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	52		10	1.9	mg/L			06/06/16 22:37	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	1.0		0.10	0.10	mg/L			06/01/16 11:17	1
Bicarbonate Alkalinity as CaCO3	360		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
Alkalinity	360		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-218491/1-A**

**Matrix: Water**

**Analysis Batch: 218821**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 218491**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.020	0.014	ug/L		06/01/16 12:36	06/04/16 14:34	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	78		44 - 125				06/01/16 12:36	06/04/16 14:34	1

**Lab Sample ID: LCS 580-218491/2-A**

**Matrix: Water**

**Analysis Batch: 218821**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 218491**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	8.00	7.10		ug/L		89	30 - 149
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4,6-Tribromophenol	90		44 - 125				

**Lab Sample ID: LCSD 580-218491/3-A**

**Matrix: Water**

**Analysis Batch: 218821**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 218491**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	8.00	7.94		ug/L		99	30 - 149	11	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	92		44 - 125						

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 580-219353/21-A**

**Matrix: Water**

**Analysis Batch: 219580**

**Client Sample ID: Method Blank**

**Prep Type: Total Recoverable**

**Prep Batch: 219353**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	1.4	ug/L		06/10/16 08:38	06/10/16 13:35	5

**Lab Sample ID: LCS 580-219353/22-A**

**Matrix: Water**

**Analysis Batch: 219580**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total Recoverable**

**Prep Batch: 219353**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4000	3820		ug/L		96	80 - 120

**Lab Sample ID: LCSD 580-219353/23-A**

**Matrix: Water**

**Analysis Batch: 219580**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total Recoverable**

**Prep Batch: 219353**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4000	3940		ug/L		99	80 - 120	3	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

## Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 580-220033/21-A  
Matrix: Water  
Analysis Batch: 220136

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 220033

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	1.4	ug/L		06/16/16 14:06	06/17/16 11:28	5
Iron	ND		200	29	ug/L		06/16/16 14:06	06/17/16 11:28	5
Manganese	ND		10	1.8	ug/L		06/16/16 14:06	06/17/16 11:28	5

Lab Sample ID: LCS 580-220033/22-A  
Matrix: Water  
Analysis Batch: 220136

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 220033

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4000	4170		ug/L		104	80 - 120
Iron	22000	23400		ug/L		106	80 - 120
Manganese	1000	1030		ug/L		103	80 - 120

Lab Sample ID: LCSD 580-220033/23-A  
Matrix: Water  
Analysis Batch: 220136

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total Recoverable  
Prep Batch: 220033

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4000	4250		ug/L		106	80 - 120	2	20
Iron	22000	24200		ug/L		110	80 - 120	3	20
Manganese	1000	1070		ug/L		107	80 - 120	3	20

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-218650/3  
Matrix: Water  
Analysis Batch: 218650

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.080	mg/L			06/01/16 15:22	1
Nitrate as N	ND		0.20	0.020	mg/L			06/01/16 15:22	1

Lab Sample ID: LCS 580-218650/4  
Matrix: Water  
Analysis Batch: 218650

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	5.00	5.05		mg/L		101	90 - 110
Nitrate as N	5.00	5.26		mg/L		105	90 - 110

Lab Sample ID: LCSD 580-218650/5  
Matrix: Water  
Analysis Batch: 218650

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	5.00	5.12		mg/L		102	90 - 110	1	15
Nitrate as N	5.00	5.29		mg/L		106	90 - 110	1	15

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 580-218658/3  
Matrix: Water  
Analysis Batch: 218658

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			06/01/16 15:22	1
Chloride	0.670	J	0.90	0.040	mg/L			06/01/16 15:22	1
Bromide	ND		0.50	0.060	mg/L			06/01/16 15:22	1
Sulfate	ND		1.2	0.26	mg/L			06/01/16 15:22	1

Lab Sample ID: LCS 580-218658/4  
Matrix: Water  
Analysis Batch: 218658

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	5.26		mg/L		105	90 - 110
Chloride	50.0	52.8		mg/L		106	90 - 110
Bromide	5.00	4.69		mg/L		94	90 - 110
Sulfate	50.0	52.9		mg/L		106	90 - 110

Lab Sample ID: LCSD 580-218658/5  
Matrix: Water  
Analysis Batch: 218658

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	5.33		mg/L		107	90 - 110	1	15
Chloride	50.0	53.3		mg/L		107	90 - 110	1	15
Bromide	5.00	4.69		mg/L		94	90 - 110	0	15
Sulfate	50.0	53.0		mg/L		106	90 - 110	0	15

## Method: 365.1 - Phosphorus, Ortho

Lab Sample ID: MB 580-218482/1  
Matrix: Water  
Analysis Batch: 218482

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/01/16 11:17	1

Lab Sample ID: LCS 580-218482/2  
Matrix: Water  
Analysis Batch: 218482

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.91		mg/L		95	90 - 110

Lab Sample ID: 580-59955-4 MS  
Matrix: Water  
Analysis Batch: 218482

Client Sample ID: MW003-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	1.3		2.00	3.02		mg/L		85	80 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

## Method: 365.1 - Phosphorus, Ortho (Continued)

Lab Sample ID: 580-59955-4 MSD  
Matrix: Water  
Analysis Batch: 218482

Client Sample ID: MW003-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	1.3		2.00	3.10		mg/L		89	80 - 120	3	20

Lab Sample ID: 580-59955-4 DU  
Matrix: Water  
Analysis Batch: 218482

Client Sample ID: MW003-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
ortho-Phosphate	1.3		1.32		mg/L		0	20

## Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 580-218692/2  
Matrix: Water  
Analysis Batch: 218692

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	98.4		mg/L		98	85 - 115

Lab Sample ID: 580-59955-4 DU  
Matrix: Water  
Analysis Batch: 218692

Client Sample ID: MW003-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	330		339		mg/L		2	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Alkalinity	330		339		mg/L		2	17
Hydroxide Alkalinity as CaCO3	ND		ND		mg/L		NC	20

## Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-328779/34  
Matrix: Water  
Analysis Batch: 328779

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1

Lab Sample ID: MB 280-328779/5  
Matrix: Water  
Analysis Batch: 328779

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

## Method: SM 4500 S2 D - Sulfide, Total (Continued)

**Lab Sample ID: LCS 280-328779/3**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.444	0.433		mg/L		98	80 - 119

**Lab Sample ID: LCS 280-328779/32**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.444	0.429		mg/L		97	80 - 119

**Lab Sample ID: LCSD 280-328779/33**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.444	0.412		mg/L		93	80 - 119	4	10

**Lab Sample ID: LCSD 280-328779/4**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.444	0.417		mg/L		94	80 - 119	4	10

**Lab Sample ID: 580-59955-6 MS**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: MW002R-E1**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND		0.422	0.429		mg/L		102	80 - 119

**Lab Sample ID: 580-59955-6 MSD**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: MW002R-E1**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND		0.422	0.446		mg/L		106	80 - 119	4	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-219113/1**

**Matrix: Water**

**Analysis Batch: 219113**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/08/16 08:27	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: LCS 580-219113/2**

**Matrix: Water**

**Analysis Batch: 219113**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.95		mg/L		99	85 - 115

**Lab Sample ID: MB 580-219127/1**

**Matrix: Water**

**Analysis Batch: 219127**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/08/16 08:42	1

**Lab Sample ID: LCS 580-219127/2**

**Matrix: Water**

**Analysis Batch: 219127**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	10.2		mg/L		102	85 - 115

**Lab Sample ID: 580-59955-7 MS**

**Matrix: Water**

**Analysis Batch: 219127**

**Client Sample ID: MW004-E1**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	4.5	J	100	110		mg/L		106	85 - 115

**Lab Sample ID: 580-59955-7 MSD**

**Matrix: Water**

**Analysis Batch: 219127**

**Client Sample ID: MW004-E1**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	4.5	J	100	107		mg/L		103	85 - 115	3	20

**Lab Sample ID: 580-59955-7 DU**

**Matrix: Water**

**Analysis Batch: 219127**

**Client Sample ID: MW004-E1**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	4.5	J	100	4.22	J	mg/L				6	20

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-219043/1**

**Matrix: Water**

**Analysis Batch: 219043**

**Client Sample ID: Method Blank**

**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/06/16 16:12	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

**Lab Sample ID: LCS 580-219043/2**  
**Matrix: Water**  
**Analysis Batch: 219043**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.2		mg/L		102	85 - 115

**Lab Sample ID: MB 580-219044/1**  
**Matrix: Water**  
**Analysis Batch: 219044**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/06/16 22:37	1

**Lab Sample ID: LCS 580-219044/2**  
**Matrix: Water**  
**Analysis Batch: 219044**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.4		mg/L		104	85 - 115

**Lab Sample ID: 580-59955-5 MS**  
**Matrix: Water**  
**Analysis Batch: 219044**

**Client Sample ID: MW503-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	40		100	148		mg/L		108	85 - 115

**Lab Sample ID: 580-59955-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 219044**

**Client Sample ID: MW503-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	40		100	145		mg/L		105	85 - 115	2	20

**Lab Sample ID: 580-59955-5 DU**  
**Matrix: Water**  
**Analysis Batch: 219044**

**Client Sample ID: MW503-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	40		40.3		mg/L		1	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW005R-E1**

**Lab Sample ID: 580-59955-1**

**Date Collected: 05/31/16 13:55**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218491	06/01/16 12:36	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		100	218821	06/04/16 16:04	D1R	TAL SEA
Total/NA	Analysis	9040B		1	218632	06/02/16 12:51	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	219043	06/06/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	219113	06/08/16 08:27	Z1T	TAL SEA

**Client Sample ID: MW006R-E1**

**Lab Sample ID: 580-59955-2**

**Date Collected: 05/31/16 14:10**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218491	06/01/16 12:36	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		10	218821	06/04/16 16:27	D1R	TAL SEA
Total/NA	Analysis	9040B		1	218632	06/02/16 12:54	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	219043	06/06/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	219113	06/08/16 08:27	Z1T	TAL SEA

**Client Sample ID: MW506R-E1**

**Lab Sample ID: 580-59955-3**

**Date Collected: 05/31/16 14:10**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	219043	06/06/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	219113	06/08/16 08:27	Z1T	TAL SEA

**Client Sample ID: MW003-E1**

**Lab Sample ID: 580-59955-4**

**Date Collected: 05/31/16 16:20**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218491	06/01/16 12:36	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		10	218821	06/04/16 16:50	D1R	TAL SEA
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6020A		5	220136	06/17/16 12:37	FCW	TAL SEA
Total Recoverable	Prep	3005A			219353	06/10/16 08:38	MKN	TAL SEA
Total Recoverable	Analysis	6020A		5	219580	06/10/16 17:21	FCW	TAL SEA
Dissolved	Analysis	300.0		1	218650	06/01/16 16:06	RSB	TAL SEA
Dissolved	Analysis	300.0		1	218658	06/01/16 16:06	RSB	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW003-E1**

**Lab Sample ID: 580-59955-4**

Date Collected: 05/31/16 16:20

Matrix: Water

Date Received: 06/01/16 10:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	365.1		1	218482	06/01/16 11:17	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218632	06/02/16 12:23	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	219043	06/06/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	219113	06/08/16 08:27	Z1T	TAL SEA

**Client Sample ID: MW503-E1**

**Lab Sample ID: 580-59955-5**

Date Collected: 05/31/16 16:30

Matrix: Water

Date Received: 06/01/16 10:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218491	06/01/16 12:36	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		10	218821	06/04/16 17:12	D1R	TAL SEA
Dissolved	Analysis	300.0		1	218650	06/01/16 16:20	RSB	TAL SEA
Dissolved	Analysis	300.0		1	218658	06/01/16 16:20	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218482	06/01/16 11:17	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218632	06/02/16 12:27	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	219044	06/06/16 22:37	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	219113	06/08/16 08:27	Z1T	TAL SEA

**Client Sample ID: MW002R-E1**

**Lab Sample ID: 580-59955-6**

Date Collected: 05/31/16 16:30

Matrix: Water

Date Received: 06/01/16 10:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218491	06/01/16 12:36	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		100	218821	06/04/16 17:35	D1R	TAL SEA
Dissolved	Analysis	300.0		1	218650	06/01/16 16:34	RSB	TAL SEA
Dissolved	Analysis	300.0		1	218658	06/01/16 16:34	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218482	06/01/16 11:17	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218632	06/02/16 12:30	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	219044	06/08/16 06:53	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219113	06/08/16 08:32	Z1T	TAL SEA

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW004-E1**

**Lab Sample ID: 580-59955-7**

**Date Collected: 05/31/16 18:45**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218491	06/01/16 12:36	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		1	218821	06/04/16 15:41	D1R	TAL SEA
Dissolved	Analysis	300.0		1	218650	06/01/16 16:49	RSB	TAL SEA
Dissolved	Analysis	300.0		1	218658	06/01/16 16:49	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218482	06/01/16 11:17	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218632	06/02/16 12:37	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	219044	06/08/16 06:53	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219127	06/08/16 08:44	Z1T	TAL SEA

**Client Sample ID: B003R-E1**

**Lab Sample ID: 580-59955-8**

**Date Collected: 05/31/16 18:10**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	219044	06/06/16 22:37	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	219127	06/08/16 08:42	Z1T	TAL SEA

**Client Sample ID: MW011-E1**

**Lab Sample ID: 580-59955-9**

**Date Collected: 05/31/16 15:40**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	219044	06/06/16 22:37	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	219127	06/08/16 08:42	Z1T	TAL SEA

**Client Sample ID: MW001-E1**

**Lab Sample ID: 580-59955-10**

**Date Collected: 05/31/16 18:55**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218491	06/01/16 12:36	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		10	218821	06/04/16 17:58	D1R	TAL SEA
Dissolved	Analysis	300.0		1	218650	06/01/16 17:03	RSB	TAL SEA
Dissolved	Analysis	300.0		1	218658	06/01/16 17:03	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218482	06/01/16 11:17	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218632	06/02/16 12:46	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

**Client Sample ID: MW001-E1**

**Lab Sample ID: 580-59955-10**

**Date Collected: 05/31/16 18:55**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	219044	06/06/16 22:37	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	219127	06/08/16 08:42	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
9040B		Water	pH
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide



# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59955-1	MW005R-E1	Water	05/31/16 13:55	06/01/16 10:11
580-59955-2	MW006R-E1	Water	05/31/16 14:10	06/01/16 10:11
580-59955-3	MW506R-E1	Water	05/31/16 14:10	06/01/16 10:11
580-59955-4	MW003-E1	Water	05/31/16 16:20	06/01/16 10:11
580-59955-5	MW503-E1	Water	05/31/16 16:30	06/01/16 10:11
580-59955-6	MW002R-E1	Water	05/31/16 16:30	06/01/16 10:11
580-59955-7	MW004-E1	Water	05/31/16 18:45	06/01/16 10:11
580-59955-8	B003R-E1	Water	05/31/16 18:10	06/01/16 10:11
580-59955-9	MW011-E1	Water	05/31/16 15:40	06/01/16 10:11
580-59955-10	MW001-E1	Water	05/31/16 18:55	06/01/16 10:11



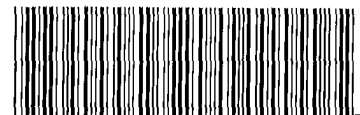
55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

Field Sampler(s):  
**PP, RF, SK, EH**

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
Project Name: Parcel 15 - POT	SDG: _____	TestAmerica		Brooks <sup>1</sup>
Project # or PO #: 603.002.010	Custody Seals intact?	Analysis Requested		
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	Total Organic Carbon Dissolved Organic Carbon (field filtered) Sulfide (dissolved; field filtered) Major Cations (dissolved; field filtered)* Major Anions, Alkalinity, Nitrate/Nitrite (dissolved; field filtered)** Orthophosphate (dissolved; field filtered) Arsenic (total) Arsenic, Iron, and Manganese (dissolved; field filtered) Pentachlorophenol and pH Arsenic (total) Arsenic, Iron, and Manganese (dissolved; field filtered)*** Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered) Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	Brooks - Ben Wozniak- 206-753-6158	
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C		TestAmerica - Christabel Escarez - 253.248.4975	
Report to email: echughes@gslws.com, cryals@gslws.com	Therm ID No.: _____ Therm Exp. _____			
Analysis Turnaround Time:				
Standard 21 day TAT on Most Analyses				
Rush 5 day on Dissolved Metals (see notes)				

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (G=Comp, G=Grab)	Matrix	Total # of Cont.	Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrite (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	Sample Specific Notes
MW005R-EI	5/31	1355	486	G	GW	7	X	X	X						X	X	X			
MW006R-EI	5/31	1410	710	G	GW	7	X	X	X						X	X	X			
MWS06R-EI	5/31	1410	710	G	GW	5	X	X	X						X	X				(no PCP)
MW003-EI	5/31	1620	694	G	GW	16	X	X	X	X	X	X	X	X	X	X	X	X	X	6 bottles Brook
MWS03-EI	5/31	1630	695	G	GW	15	X	X	X	X	X	X			X	X	X	X	X	6 bottles Brook
MW002R-EI	5/31	1630	460	G	GW	15	X	X	X	X	X	X			X	X	X	X	X	6 TA Brook
MW004-EI	5/31	1845	135	G	GW	15	X	X	X	X	X	X			X	X	X	X	X	6 TA
B003R-EI	5/31	1810	4260	G	GW	5	X	X	X							X	X			3 TA
MW011-EI	5/31	1540	2224	G	GW	3	X	X	X							X	X			3 TA
MW001-EI	5/31	1855	799	G	GW	15	X	X	X	X	X	X			X	X	X	X	X	3 TA



<b>Possible Hazard Identification:</b>	580-59955 Chain of Custody	<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>
Are samples hazardous?		Erin Hughes 6/1/16 8:00 AM
If yes, select hazard(s):		
Received by: <i>Atty Cambell</i>	Date/Time: 6/1/16 8:00	Relinquished by: _____ Date/Time: _____
Received by: _____	Date/Time: _____	Relinquished by: _____ Date/Time: _____
Received in Laboratory by: _____	Date/Time: _____	Shipped Via: _____ Tracking #: _____

**Special Instructions/QC Requirements**

\*Major Cations include calcium, magnesium, potassium, and sodium.

\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total, carbonate as CaCO<sub>3</sub>, bicarbonate as CaCO<sub>3</sub>, and hydroxide as CaCO<sub>3</sub>.

\*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.

Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.

Please contact Cindy Ryals at 971-200-8531 with any questions.

① Test America to Courier Samples to Brooks

**TestAmerica Seattle**

5755 8th Street East  
Tacoma, WA 98424  
Phone (253) 922-2310 Fax (253) 922-5047

**Chain of Custody Record**



**Client Information (Sub Contract Lab)**

Client Contact: Escarez, Christabel C  
Shipping/Receiving: christabel.escarez@testamericainc.com  
Company: TestAmerica Laboratories, Inc.  
Address: 4955 Yarrow Street,  
City: Arvada  
State/Zip: CO, 80002  
Phone: 303-736-0100(Tel) 303-431-7171(Fax)  
E-mail:  
Project Name: 58009703  
Parcel 15 RI  
Site:

**Sampler:** Escarez, Christabel C  
**Phone:**  
**Lab Pkt:**  
**E-Mail:** christabel.escarez@testamericainc.com  
**Center Tracking No(s):**  
**COC No:** 580-38791-1  
**Page:** Page 1 of 1  
**Job #:** 580-59955-1

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/oil, BT=Tissue, A=Air)	Analysis Requested		Special Instructions/Note:
					Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	
MW005R-E1 (580-59955-1)	5/31/16	13:55 Pacific	Water	Water	X	X	
MW006R-E1 (580-59955-2)	5/31/16	14:10 Pacific	Water	Water	X	X	
MW506R-E1 (580-59955-3)	5/31/16	14:10 Pacific	Water	Water	X	X	
MW003-E1 (580-59955-4)	5/31/16	16:20 Pacific	Water	Water	X	X	
MW503-E1 (580-59955-5)	5/31/16	16:30 Pacific	Water	Water	X	X	
MW002R-E1 (580-59955-6)	5/31/16	16:30 Pacific	Water	Water	X	X	
MW004-E1 (580-59955-7)	5/31/16	18:45 Pacific	Water	Water	X	X	
B003R-E1 (580-59955-8)	5/31/16	18:10 Pacific	Water	Water	X	X	
MW011-E1 (580-59955-9)	5/31/16	15:40 Pacific	Water	Water	X	X	
MW001-E1 (580-59955-10)	5/31/16	18:55 Pacific	Water	Water	X	X	

**Possible Hazard Identification**  
**Unconfirmed**  
Deliverable Requested: I, II, III, IV, Other (specify)

**Special Instructions/QC Requirements:**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

**Empty Kit Relinquished by:** \_\_\_\_\_  
**Relinquished by:** B. Zbor  
**Relinquished by:** \_\_\_\_\_  
**Relinquished by:** \_\_\_\_\_

**Date:** 6/1/16  
**Time:** 1333

**Received by:** S.ATA  
**Received by:** Nayra G. G. G.  
**Received by:** \_\_\_\_\_

**Date/Time:** 6/1/16 9:40  
**Date/Time:** \_\_\_\_\_  
**Date/Time:** \_\_\_\_\_

**Company:** SEATA  
**Company:** \_\_\_\_\_  
**Company:** \_\_\_\_\_

**Custody Seal No.:** \_\_\_\_\_  
**Custody Seal No.:** \_\_\_\_\_  
**Custody Seal No.:** \_\_\_\_\_

**Other Remarks:** Transfer by ms 1.3 IRS -0.0



Login #: 580-59941 Date/Time Received: 6/3/16 940

Company Name & Sampling Site: TA Seattle

Time Zone: • EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER State: \_\_\_\_\_

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR)

Temp 1.3 IR# 5  
CF +0.0 Initials DW  
Date: 06/03/16

*Fedex 676968100358*



580-59941 Login  
PM: Alltucker, David R  
Company: Element Environmental, LLC

Initials SPL

N/A Yes No

- 1. Is radioactivity at or below background? BKG CPM: \_\_\_\_\_ CPM Reading: \_\_\_\_\_
- 2a. Is a custody seal present on the cooler?
- 2b. If yes, is the cooler's custody seal intact?
- 2c. Do cooler or samples appear to not have been compromised or tampered with?
- 3a. Were samples received on ice?
- 3b. Is cooler temperature acceptable?
- 3c. Has temperature been recorded?
- 4. Is COC present; filled out in ink and legible; and filled out with all pertinent information?
- 5. Is the Field Sampler's name present on the COC?
- 6a. Are there no discrepancies between the sample IDs and/or collection date and time on the containers and the COC?
- 6b. Are there no discrepancies between the container types and those listed on the COC?
- 7. Are samples received within Holding Time?
- 8. Do sample containers have legible labels?
- 9. Are all sample containers intact (not broken or leaking)?
- 10a. Are appropriate sample containers used?
- 10b. Are sample bottles completely filled? (Perchlorate bottles ≥ 1/3 head space)
- 10c. Is sufficient vol. for all requested analyses, incl. any requested MS/MSDs provided?
- 11. No splitting or compositing of samples required?
- 12. Do all VOA sample vials have no headspace or bubbles >6 mm (1/4") in diameter?
- 13. Were VOA vials labeled as preserved?  HCl  0-6°C  Sodium Thiosulfate  Ascorbic Acid  Other
- 14. Are all samples single phase? (i.e., no multiphasic samples are present.)

**Login Checks:**

- 15. Was a Priority Form completed for any short holds or quick TATs? Initials \_\_\_\_\_
- 16. Were any tests logged for subcontract?
- 17. Were special archiving instructions and login instructions indicated in the Project Notes?

Note Archive Requirements: \_\_\_\_\_

18. Were multiple-Series logged for this job?

**Labeling and Storage Checks:**

DOE/DoD:  Yes  No Residual chlorine check required:  Yes  No Quarantined:  Yes  No Initials \_\_\_\_\_

- 19. Was Sample Preservation verified and found to be correct? (excluding VOA, Oil & Grease, and TOC volumes)
- 20. Was Residual Chlorine checked and noted on the CUR if present?
- 21. If subcontract work was requested, was volume placed on sub shelf?
- 22. Were Terracore/Encores delivered to VOA lab? Verified by: \_\_\_\_\_
- 23. Did the sample ID on TA label match the client's sample ID on container?
- 24. Were stickers for special archiving instructions affixed to each box?

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59955-1

**Login Number: 59955**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	False	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59955-1

**Login Number: 59955**

**List Number: 2**

**Creator: Soto, Mayra A**

**List Source: TestAmerica Denver**

**List Creation: 06/03/16 01:32 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

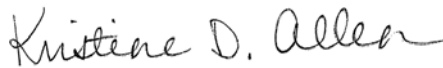
## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59955-2  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
7/12/2016 4:55:27 PM  
Kristine Allen, Manager of Project Management  
(253)248-4970  
[kristine.allen@testamericainc.com](mailto:kristine.allen@testamericainc.com)

Designee for  
Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-2

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**Job ID: 580-59955-2**

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**Laboratory: TestAmerica Seattle**

## Narrative

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**Job Narrative**  
**580-59955-2**

## Comments

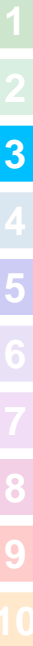
No additional comments.

## Receipt

The samples were received on 6/1/2016 8:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 4.8° C and 5.6° C.

## Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-2

## Qualifiers

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-2

**Client Sample ID: MW003-E1**

**Lab Sample ID: 580-59955-4**

**Date Collected: 05/31/16 16:20**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	66		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 11:56	1
Magnesium	32		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 11:56	1
Potassium	2.6	J	3.3	0.15	mg/L		07/11/16 17:37	07/12/16 11:56	1
Sodium	37		2.0	0.55	mg/L		07/11/16 17:37	07/12/16 11:56	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-2

**Client Sample ID: MW503-E1**

**Lab Sample ID: 580-59955-5**

**Date Collected: 05/31/16 16:30**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	66		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 11:59	1
Magnesium	31		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 11:59	1
Potassium	2.5	J	3.3	0.15	mg/L		07/11/16 17:37	07/12/16 11:59	1
Sodium	37		2.0	0.55	mg/L		07/11/16 17:37	07/12/16 11:59	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-2

**Client Sample ID: MW002R-E1**

**Lab Sample ID: 580-59955-6**

**Date Collected: 05/31/16 16:30**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	87		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 12:09	1
Magnesium	ND		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 12:09	1
Potassium	5.5		3.3	0.15	mg/L		07/11/16 17:37	07/12/16 12:09	1
Sodium	9.2		2.0	0.55	mg/L		07/11/16 17:37	07/12/16 12:09	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-2

**Client Sample ID: MW004-E1**

**Lab Sample ID: 580-59955-7**

**Date Collected: 05/31/16 18:45**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	15		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 12:12	1
Magnesium	4.2		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 12:12	1
Potassium	2.4	J	3.3	0.15	mg/L		07/11/16 17:37	07/12/16 12:12	1
Sodium	14		2.0	0.55	mg/L		07/11/16 17:37	07/12/16 12:12	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-2

**Client Sample ID: MW001-E1**

**Lab Sample ID: 580-59955-10**

**Date Collected: 05/31/16 18:55**

**Matrix: Water**

**Date Received: 06/01/16 10:11**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	70		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 12:15	1
Magnesium	39		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 12:15	1
Potassium	4.0		3.3	0.15	mg/L		07/11/16 17:37	07/12/16 12:15	1
Sodium	44		2.0	0.55	mg/L		07/11/16 17:37	07/12/16 12:15	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-2

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-222076/20-A**

**Matrix: Water**

**Analysis Batch: 222170**

**Client Sample ID: Method Blank**

**Prep Type: Total Recoverable**

**Prep Batch: 222076**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 10:52	1
Magnesium	ND		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 10:52	1
Potassium	ND		3.3	0.15	mg/L		07/11/16 17:37	07/12/16 10:52	1
Sodium	ND		2.0	0.55	mg/L		07/11/16 17:37	07/12/16 10:52	1

**Lab Sample ID: LCS 580-222076/21-A**

**Matrix: Water**

**Analysis Batch: 222170**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total Recoverable**

**Prep Batch: 222076**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	20.7		mg/L		103	80 - 120
Magnesium	20.0	20.5		mg/L		103	80 - 120
Potassium	20.0	20.3		mg/L		102	80 - 120
Sodium	20.0	20.6		mg/L		103	80 - 120

**Lab Sample ID: LCSD 580-222076/22-A**

**Matrix: Water**

**Analysis Batch: 222170**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total Recoverable**

**Prep Batch: 222076**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	20.0	20.8		mg/L		104	80 - 120	0	20
Magnesium	20.0	20.4		mg/L		102	80 - 120	1	20
Potassium	20.0	20.5		mg/L		102	80 - 120	1	20
Sodium	20.0	20.8		mg/L		104	80 - 120	1	20



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-2

**Client Sample ID: MW003-E1**

**Lab Sample ID: 580-59955-4**

Date Collected: 05/31/16 16:20

Matrix: Water

Date Received: 06/01/16 10:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 11:56	HJM	TAL SEA

**Client Sample ID: MW503-E1**

**Lab Sample ID: 580-59955-5**

Date Collected: 05/31/16 16:30

Matrix: Water

Date Received: 06/01/16 10:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 11:59	HJM	TAL SEA

**Client Sample ID: MW002R-E1**

**Lab Sample ID: 580-59955-6**

Date Collected: 05/31/16 16:30

Matrix: Water

Date Received: 06/01/16 10:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 12:09	HJM	TAL SEA

**Client Sample ID: MW004-E1**

**Lab Sample ID: 580-59955-7**

Date Collected: 05/31/16 18:45

Matrix: Water

Date Received: 06/01/16 10:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 12:12	HJM	TAL SEA

**Client Sample ID: MW001-E1**

**Lab Sample ID: 580-59955-10**

Date Collected: 05/31/16 18:55

Matrix: Water

Date Received: 06/01/16 10:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 12:15	HJM	TAL SEA

**Laboratory References:**

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-2

## Laboratory: TestAmerica Seattle

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

- 1
- 2
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- 8
- 9
- 10

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59955-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59955-4	MW003-E1	Water	05/31/16 16:20	06/01/16 10:11
580-59955-5	MW503-E1	Water	05/31/16 16:30	06/01/16 10:11
580-59955-6	MW002R-E1	Water	05/31/16 16:30	06/01/16 10:11
580-59955-7	MW004-E1	Water	05/31/16 18:45	06/01/16 10:11
580-59955-10	MW001-E1	Water	05/31/16 18:55	06/01/16 10:11

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## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59955-2

**Login Number: 59955**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	False	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59976-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/22/2016 1:54:42 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

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*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

**Job ID: 580-59976-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-59976-1

#### Receipt

The samples were received on 6/2/2016 9:10 AM; the samples arrived in good condition, properly preserved, and on ice. The temperatures of the 2 coolers at receipt were 3.2° C and 5.7° C.

#### Receipt Exceptions

One 250ml sulfuric amber bottle for dissolved organic carbon analysis was received empty container for the following sample: HC002-E1 (580-59976-7). The client was contacted and approved the transference of volume from an unpreserved poly container to the prepreserved sulfuric amber container. This was performed on 6/2/16.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0: Reanalysis of the following samples was performed outside of the analytical holding time due to a calibration failure in the initial analysis: WCTSW001B-E1 (580-59976-1), WCTSW002B-E1 (580-59976-2), WCTSW003B-E1 (580-59976-3), USSW001-E1 (580-59976-4), BWSW001-E1 (580-59976-5), B001R-E1 (580-59976-6), HC002-E1 (580-59976-7), MW012-E1 (580-59976-8) and MW009-E1 (580-59976-9).

Method(s) 300.0: Due to a high level of chloride, samples WCTSW001B-E1 (580-59976-1), WCTSW002B-E1 (580-59976-2), WCTSW003B-E1 (580-59976-3), USSW001-E1 (580-59976-4), BWSW001-E1 (580-59976-5), B001R-E1 (580-59976-6), HC002-E1 (580-59976-7), MW012-E1 (580-59976-8) and MW009-E1 (580-59976-9) required multiple dilutions, which may have removed low level analytes. The original run resulted with a calibration failure of the instrument.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

**Client Sample ID: WCTSW001B-E1**

**Lab Sample ID: 580-59976-1**

Date Collected: 06/01/16 09:15

Matrix: Water

Date Received: 06/02/16 09:10

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>3.6</b>		1.0	0.19	mg/L			06/08/16 08:42	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/07/16 13:26	100
Nitrite as N	ND	H	40	8.0	mg/L			06/07/16 13:26	100
<b>Chloride</b>	<b>1300</b>		90	4.0	mg/L			06/07/16 13:26	100
<b>Nitrate as N</b>	<b>1.2</b>		0.20	0.020	mg/L			06/02/16 13:55	1
Bromide	ND		50	6.0	mg/L			06/07/16 13:26	100
<b>Sulfate</b>	<b>200</b>		120	26	mg/L			06/07/16 13:26	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
<b>Dissolved Organic Carbon</b>	<b>3.6</b>		1.0	0.19	mg/L			06/08/16 06:53	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/02/16 16:44	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>130</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
<b>Alkalinity</b>	<b>130</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

**Client Sample ID: WCTSW002B-E1**

**Lab Sample ID: 580-59976-2**

Date Collected: 06/01/16 10:45

Matrix: Water

Date Received: 06/02/16 09:10

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	4.4		1.0	0.19	mg/L			06/08/16 08:44	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/07/16 13:41	100
Nitrite as N	ND	H	40	8.0	mg/L			06/07/16 13:41	100
Chloride	950		90	4.0	mg/L			06/07/16 13:41	100
Nitrate as N	1.4		0.20	0.020	mg/L			06/02/16 14:10	1
Bromide	ND		50	6.0	mg/L			06/07/16 13:41	100
Sulfate	130		120	26	mg/L			06/07/16 13:41	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	3.3		1.0	0.19	mg/L			06/08/16 06:53	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.11		0.10	0.10	mg/L			06/02/16 16:44	1
Bicarbonate Alkalinity as CaCO3	120		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
Alkalinity	120		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

**Client Sample ID: WCTSW003B-E1**

**Lab Sample ID: 580-59976-3**

Date Collected: 06/01/16 10:30

Matrix: Water

Date Received: 06/02/16 09:10

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>3.8</b>		1.0	0.19	mg/L			06/08/16 08:44	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/07/16 13:55	100
Nitrite as N	ND	H	40	8.0	mg/L			06/07/16 13:55	100
<b>Chloride</b>	<b>890</b>		90	4.0	mg/L			06/07/16 13:55	100
<b>Nitrate as N</b>	<b>1.4</b>		0.20	0.020	mg/L			06/02/16 14:24	1
Bromide	ND		50	6.0	mg/L			06/07/16 13:55	100
<b>Sulfate</b>	<b>140</b>		120	26	mg/L			06/07/16 13:55	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
<b>Dissolved Organic Carbon</b>	<b>3.3</b>		1.0	0.19	mg/L			06/08/16 06:53	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>ortho-Phosphate</b>	<b>0.10</b>		0.10	0.10	mg/L			06/02/16 16:44	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>120</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
<b>Alkalinity</b>	<b>120</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

**Client Sample ID: USSW001-E1**

**Lab Sample ID: 580-59976-4**

**Date Collected: 06/01/16 12:00**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>2.1</b>		1.0	0.19	mg/L			06/08/16 08:44	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			06/07/16 14:09	1
Nitrite as N	ND		0.40	0.080	mg/L			06/02/16 14:38	1
<b>Chloride</b>	<b>9.7</b>		0.90	0.040	mg/L			06/07/16 14:09	1
<b>Nitrate as N</b>	<b>2.2</b>		0.20	0.020	mg/L			06/02/16 14:38	1
Bromide	ND		0.50	0.060	mg/L			06/07/16 14:09	1
<b>Sulfate</b>	<b>11</b>		1.2	0.26	mg/L			06/07/16 14:09	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
<b>Dissolved Organic Carbon</b>	<b>2.2</b>		1.0	0.19	mg/L			06/08/16 06:53	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>ortho-Phosphate</b>	<b>0.11</b>		0.10	0.10	mg/L			06/02/16 16:44	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>90</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
<b>Alkalinity</b>	<b>90</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

**Client Sample ID: BWSW001-E1**

**Lab Sample ID: 580-59976-5**

**Date Collected: 06/01/16 14:30**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>2.4</b>		1.0	0.19	mg/L			06/08/16 09:04	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		40	6.0	mg/L			06/07/16 14:24	200
Nitrite as N	ND	H	80	16	mg/L			06/07/16 14:24	200
<b>Chloride</b>	<b>15000</b>		180	8.0	mg/L			06/07/16 14:24	200
Nitrate as N	ND	H	40	4.0	mg/L			06/07/16 14:24	200
Bromide	ND		100	12	mg/L			06/07/16 14:24	200
<b>Sulfate</b>	<b>2000</b>		240	52	mg/L			06/07/16 14:24	200
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
<b>Dissolved Organic Carbon</b>	<b>1.7</b>		1.0	0.19	mg/L			06/20/16 15:58	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/02/16 16:44	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>86</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
<b>Alkalinity</b>	<b>86</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

**Client Sample ID: B001R-E1**

**Lab Sample ID: 580-59976-6**

**Date Collected: 06/01/16 15:00**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>110</b>		20	3.8	mg/L			06/08/16 09:04	20

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Fluoride</b>	<b>0.98</b>		0.20	0.030	mg/L			06/07/16 14:38	1
Nitrite as N	ND		0.40	0.080	mg/L			06/02/16 15:07	1
<b>Chloride</b>	<b>51</b>		0.90	0.040	mg/L			06/07/16 14:38	1
Nitrate as N	ND		0.20	0.020	mg/L			06/02/16 15:07	1
Bromide	ND		0.50	0.060	mg/L			06/07/16 14:38	1
Sulfate	ND		1.2	0.26	mg/L			06/07/16 14:38	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
<b>Dissolved Organic Carbon</b>	<b>100</b>		20	3.8	mg/L			06/20/16 15:58	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>ortho-Phosphate</b>	<b>0.64</b>		0.10	0.10	mg/L			06/02/16 16:44	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>760</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
<b>Alkalinity</b>	<b>760</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

**Client Sample ID: HC002-E1**

**Lab Sample ID: 580-59976-7**

**Date Collected: 06/01/16 16:30**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>130</b>		20	3.8	mg/L			06/09/16 12:59	20

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Fluoride</b>	<b>1.2</b>		0.20	0.030	mg/L			06/07/16 14:53	1
Nitrite as N	ND		0.40	0.080	mg/L			06/02/16 15:22	1
<b>Chloride</b>	<b>10</b>		0.90	0.040	mg/L			06/07/16 14:53	1
Nitrate as N	ND		0.20	0.020	mg/L			06/02/16 15:22	1
Bromide	ND		0.50	0.060	mg/L			06/07/16 14:53	1
<b>Sulfate</b>	<b>0.55</b>	<b>J</b>	1.2	0.26	mg/L			06/07/16 14:53	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
<b>Dissolved Organic Carbon</b>	<b>140</b>		40	7.6	mg/L			06/20/16 15:58	40
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>ortho-Phosphate</b>	<b>0.50</b>		0.10	0.10	mg/L			06/02/16 16:44	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>540</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
<b>Alkalinity</b>	<b>540</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

**Client Sample ID: MW012-E1**

**Lab Sample ID: 580-59976-8**

**Date Collected: 06/01/16 16:20**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>68</b>		20	3.8	mg/L			06/09/16 12:59	20

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Fluoride</b>	<b>1.5</b>		0.20	0.030	mg/L			06/07/16 15:07	1
Nitrite as N	ND		0.40	0.080	mg/L			06/02/16 15:36	1
<b>Chloride</b>	<b>200</b>		9.0	0.40	mg/L			06/07/16 15:22	10
Nitrate as N	ND		0.20	0.020	mg/L			06/02/16 15:36	1
<b>Bromide</b>	<b>0.69</b>		0.50	0.060	mg/L			06/07/16 15:07	1
<b>Sulfate</b>	<b>0.52</b>	<b>J</b>	1.2	0.26	mg/L			06/07/16 15:07	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
<b>Dissolved Organic Carbon</b>	<b>85</b>		20	3.8	mg/L			06/20/16 15:58	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/02/16 16:44	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>920</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
<b>Alkalinity</b>	<b>920</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

**Client Sample ID: MW009-E1**

**Lab Sample ID: 580-59976-9**

**Date Collected: 06/01/16 17:45**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>89</b>		20	3.8	mg/L			06/09/16 12:59	20

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Fluoride</b>	<b>0.98</b>		0.20	0.030	mg/L			06/07/16 16:19	1
Nitrite as N	ND		0.40	0.080	mg/L			06/02/16 15:51	1
<b>Chloride</b>	<b>130</b>		9.0	0.40	mg/L			06/07/16 15:36	10
Nitrate as N	ND		0.20	0.020	mg/L			06/02/16 15:51	1
<b>Bromide</b>	<b>0.87</b>		0.50	0.060	mg/L			06/07/16 16:19	1
<b>Sulfate</b>	<b>0.58</b>	<b>J</b>	1.2	0.26	mg/L			06/07/16 16:19	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
<b>Dissolved Organic Carbon</b>	<b>93</b>		20	3.8	mg/L			06/20/16 15:58	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/02/16 16:44	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>830</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
<b>Alkalinity</b>	<b>830</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 580-219106/5**  
**Matrix: Water**  
**Analysis Batch: 219106**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.080	mg/L			06/02/16 10:59	1
Nitrate as N	ND		0.20	0.020	mg/L			06/02/16 10:59	1

**Lab Sample ID: LCS 580-219106/6**  
**Matrix: Water**  
**Analysis Batch: 219106**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	5.00	4.58		mg/L		92	90 - 110
Nitrate as N	5.00	5.13		mg/L		103	90 - 110

**Lab Sample ID: LCSD 580-219106/7**  
**Matrix: Water**  
**Analysis Batch: 219106**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	5.00	4.66		mg/L		93	90 - 110	2	15
Nitrate as N	5.00	5.10		mg/L		102	90 - 110	1	15

**Lab Sample ID: MB 580-219110/3**  
**Matrix: Water**  
**Analysis Batch: 219110**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			06/07/16 11:53	1
Chloride	ND		0.90	0.040	mg/L			06/07/16 11:53	1
Bromide	ND		0.50	0.060	mg/L			06/07/16 11:53	1
Sulfate	ND		1.2	0.26	mg/L			06/07/16 11:53	1

**Lab Sample ID: LCS 580-219110/4**  
**Matrix: Water**  
**Analysis Batch: 219110**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	5.20		mg/L		104	90 - 110
Chloride	50.0	54.2		mg/L		108	90 - 110
Bromide	5.00	5.22		mg/L		104	90 - 110
Sulfate	50.0	52.4		mg/L		105	90 - 110

**Lab Sample ID: LCSD 580-219110/28**  
**Matrix: Water**  
**Analysis Batch: 219110**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	5.21		mg/L		104	90 - 110	0	15
Chloride	50.0	54.2		mg/L		108	90 - 110	0	15
Bromide	5.00	5.16		mg/L		103	90 - 110	1	15
Sulfate	50.0	52.3		mg/L		105	90 - 110	0	15

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

## Method: 365.1 - Phosphorus, Ortho

Lab Sample ID: MB 580-218686/1  
Matrix: Water  
Analysis Batch: 218686

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/02/16 16:44	1

Lab Sample ID: LCS 580-218686/2  
Matrix: Water  
Analysis Batch: 218686

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.99		mg/L		99	90 - 110

Lab Sample ID: 580-59976-1 MS  
Matrix: Water  
Analysis Batch: 218686

Client Sample ID: WCTSW001B-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	ND		2.00	1.93		mg/L		96	80 - 120

Lab Sample ID: 580-59976-1 MSD  
Matrix: Water  
Analysis Batch: 218686

Client Sample ID: WCTSW001B-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
ortho-Phosphate	ND		2.00	1.94		mg/L		97	80 - 120	1	20

Lab Sample ID: 580-59976-1 DU  
Matrix: Water  
Analysis Batch: 218686

Client Sample ID: WCTSW001B-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
ortho-Phosphate	ND		ND		mg/L		NC	20

## Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 580-218692/2  
Matrix: Water  
Analysis Batch: 218692

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	98.4		mg/L		98	85 - 115

Lab Sample ID: 580-59976-6 DU  
Matrix: Water  
Analysis Batch: 218692

Client Sample ID: B001R-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Bicarbonate Alkalinity as CaCO3	760		758		mg/L		0.9	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Alkalinity	760		758		mg/L		0.9	17
Hydroxide Alkalinity as CaCO3	ND		ND		mg/L		NC	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID: MB 280-328779/34**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1

**Lab Sample ID: LCS 280-328779/32**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.444	0.429		mg/L		97	80 - 119

**Lab Sample ID: LCSD 280-328779/33**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.444	0.412		mg/L		93	80 - 119	4	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-219127/1**

**Matrix: Water**

**Analysis Batch: 219127**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/08/16 08:42	1

**Lab Sample ID: LCS 580-219127/2**

**Matrix: Water**

**Analysis Batch: 219127**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	10.2		mg/L		102	85 - 115

**Lab Sample ID: MB 580-219297/1**

**Matrix: Water**

**Analysis Batch: 219297**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/09/16 12:59	1

**Lab Sample ID: LCS 580-219297/2**

**Matrix: Water**

**Analysis Batch: 219297**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.86		mg/L		99	85 - 115

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-219044/1**  
**Matrix: Water**  
**Analysis Batch: 219044**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/06/16 22:37	1

**Lab Sample ID: LCS 580-219044/2**  
**Matrix: Water**  
**Analysis Batch: 219044**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.4		mg/L		104	85 - 115

**Lab Sample ID: MB 580-220353/1**  
**Matrix: Water**  
**Analysis Batch: 220353**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/20/16 15:58	1

**Lab Sample ID: LCS 580-220353/2**  
**Matrix: Water**  
**Analysis Batch: 220353**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.7		mg/L		107	85 - 115

**Lab Sample ID: 580-59976-5 MS**  
**Matrix: Water**  
**Analysis Batch: 220353**

**Client Sample ID: BWSW001-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	1.7		10.0	12.7		mg/L		110	85 - 115

**Lab Sample ID: 580-59976-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 220353**

**Client Sample ID: BWSW001-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	1.7		10.0	12.4		mg/L		107	85 - 115	3	20

**Lab Sample ID: 580-59976-5 DU**  
**Matrix: Water**  
**Analysis Batch: 220353**

**Client Sample ID: BWSW001-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	1.7		1.54		mg/L		10	20

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

**Client Sample ID: WCTSW001B-E1**

**Lab Sample ID: 580-59976-1**

Date Collected: 06/01/16 09:15

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	219106	06/02/16 13:55	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219106	06/07/16 13:26	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219110	06/07/16 13:26	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	219044	06/08/16 06:53	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219127	06/08/16 08:42	Z1T	TAL SEA

**Client Sample ID: WCTSW002B-E1**

**Lab Sample ID: 580-59976-2**

Date Collected: 06/01/16 10:45

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	219106	06/02/16 14:10	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219106	06/07/16 13:41	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219110	06/07/16 13:41	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	219044	06/08/16 06:53	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219127	06/08/16 08:44	Z1T	TAL SEA

**Client Sample ID: WCTSW003B-E1**

**Lab Sample ID: 580-59976-3**

Date Collected: 06/01/16 10:30

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	219106	06/02/16 14:24	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219106	06/07/16 13:55	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219110	06/07/16 13:55	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	219044	06/08/16 06:53	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219127	06/08/16 08:44	Z1T	TAL SEA

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

**Client Sample ID: USSW001-E1**

**Lab Sample ID: 580-59976-4**

**Date Collected: 06/01/16 12:00**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	219106	06/02/16 14:38	RSB	TAL SEA
Dissolved	Analysis	300.0		1	219110	06/07/16 14:09	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	219044	06/08/16 06:53	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219127	06/08/16 08:44	Z1T	TAL SEA

**Client Sample ID: BWSW001-E1**

**Lab Sample ID: 580-59976-5**

**Date Collected: 06/01/16 14:30**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		200	219106	06/07/16 14:24	RSB	TAL SEA
Dissolved	Analysis	300.0		200	219110	06/07/16 14:24	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220353	06/20/16 15:58	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219127	06/08/16 09:04	Z1T	TAL SEA

**Client Sample ID: B001R-E1**

**Lab Sample ID: 580-59976-6**

**Date Collected: 06/01/16 15:00**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	219106	06/02/16 15:07	RSB	TAL SEA
Dissolved	Analysis	300.0		1	219110	06/07/16 14:38	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		20	220353	06/20/16 15:58	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	219127	06/08/16 09:04	Z1T	TAL SEA

**Client Sample ID: HC002-E1**

**Lab Sample ID: 580-59976-7**

**Date Collected: 06/01/16 16:30**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	219106	06/02/16 15:22	RSB	TAL SEA
Dissolved	Analysis	300.0		1	219110	06/07/16 14:53	RSB	TAL SEA

TestAmerica Seattle

## Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		40	220353	06/20/16 15:58	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	219297	06/09/16 12:59	Z1T	TAL SEA

**Client Sample ID: MW012-E1**

**Lab Sample ID: 580-59976-8**

**Date Collected: 06/01/16 16:20**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	219106	06/02/16 15:36	RSB	TAL SEA
Dissolved	Analysis	300.0		1	219110	06/07/16 15:07	RSB	TAL SEA
Dissolved	Analysis	300.0		10	219110	06/07/16 15:22	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		20	220353	06/20/16 15:58	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	219297	06/09/16 12:59	Z1T	TAL SEA

**Client Sample ID: MW009-E1**

**Lab Sample ID: 580-59976-9**

**Date Collected: 06/01/16 17:45**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	219106	06/02/16 15:51	RSB	TAL SEA
Dissolved	Analysis	300.0		10	219110	06/07/16 15:36	RSB	TAL SEA
Dissolved	Analysis	300.0		1	219110	06/07/16 16:19	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		20	220353	06/20/16 15:58	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	219297	06/09/16 12:59	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59976-1	WCTSW001B-E1	Water	06/01/16 09:15	06/02/16 09:10
580-59976-2	WCTSW002B-E1	Water	06/01/16 10:45	06/02/16 09:10
580-59976-3	WCTSW003B-E1	Water	06/01/16 10:30	06/02/16 09:10
580-59976-4	USSW001-E1	Water	06/01/16 12:00	06/02/16 09:10
580-59976-5	BWSW001-E1	Water	06/01/16 14:30	06/02/16 09:10
580-59976-6	B001R-E1	Water	06/01/16 15:00	06/02/16 09:10
580-59976-7	HC002-E1	Water	06/01/16 16:30	06/02/16 09:10
580-59976-8	MW012-E1	Water	06/01/16 16:20	06/02/16 09:10
580-59976-9	MW009-E1	Water	06/01/16 17:45	06/02/16 09:10



65 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

Field Sampler(s):  
ECH, SR, RF, PP

### Chain of Custody Record

Client Contact		For Lab Use Only:					Laboratory										Lab PM			
Project Name: Parcel 15 - POT		SDG: _____					TestAmerica					Brooks					Brooks- Ben Wozniak- 206-753-6158			
Project # or PO #: 603.002.010		Custody Seals intact?					Analysis Requested													
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered?					Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp : _____ °C																		
Report to email: echughes@gslws.com, cryals@gslws.com		Therm ID No.: _____ Therm Exp. _____																		
Analysis Turnaround Time:																				
Standard 21 day TAT on Most Analyses																				
Rush 5 day on Dissolved Metals (see notes)																				
Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.													Sample Specific Notes	
WCTSW001B-EI	6/1	915	3773	G	SW	13	X	X	X	X	X	X				X	X	X	X	
WCTSW002B-EI	6/1	1045	2593	G	SW	13	X	X	X	X	X	X				X	X	X	X	
WCTSW003B-EI	6/1	1030	2625	G	SW	13	X	X	X	X	X	X				X	X	X	X	
<del>WCT</del> USSW001-EI	6/1	1200	199	G	SW	13	X	X	X	X	X	X				X	X	X	X	
BWSW001-EI	6/1	1430	28,931	G	SW	13	X	X	X	X	X	X				X	X	X	X	
BOOIR-EI	6/1	1500	1572	G	GW	13	X	X	X	X	X	X				X	X	X	X	
HCO02-EI	6/1	1630	1110	G	GW	13	X	X	X	X	X	X				X	X	X	X	
MW012-EI	6/1	1620	2012	G	SW	13	X	X	X	X	X	X				X	X	X	X	
MW009-EI	6/1	1745	2004	G	GW	13	X	X	X	X	X	X				X	X	X	X	

TBAZ Cooler Cor 5.7 Unc 5.7 TB Cooler IR2 Cor 3.2 Unc 3.0  
Cooler Dsc by CEN @Lab Cooler Dsc by B/W @Lab  
Wet/Packs Packing by by Wet/Packs Packing by by  
OK do w/10 OK do w/10

**Possible Hazard Identification:**

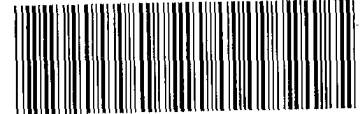
Are samples hazardous?  
If yes, select hazard(s): B. Ld 6-2-16 0910 SEAT

Sample Disposal (A-fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous).  
1 lb BULK for GSI 6/2/16 0910

Received by:	Date/Time:	Relinquished by:	Date/Time:
Received by:	Date/Time:	Relinquished by:	Date/Time:
Received in Laboratory by:	Date/Time:	Shipped Via:	Tracking #:

**Special Instructions/QC Requirements**

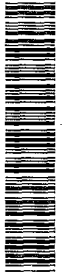
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
\*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
Please contact Cindy Ryals at 971-200-8531 with any questions.



**TestAmerica Seattle**  
 5765 8th Street East  
 Tacoma, WA 98424  
 Phone (253) 922-2310 Fax (253) 922-5047

**Chain of Custody Record**

**TestAmerica**  
 THE LEADER IN ENVIRONMENTAL TESTING



Client Information (Sub Contract Lab)		Sampler:		Carrier Tracking No(s):		COC No:			
Client Contact: Shipping/Receiving TestAmerica Laboratories, Inc. Address: 4955 Yarrow Street, City: Anvada State, Zip: CO, 80002 Phone: 303-736-0100(Tel) 303-431-7171(Fax) Email:		Lab P/N: Escarez, Chintabel C E-Mail: christabel.escarez@testamericainc.com		580-38826.1		580-38826.1			
Due Date Requested:		Analysis Requested		Total Number of Containers		Preservation Codes:			
6/18/2016		M4500, S2, D/FIELD, FLTRD Dissolved Sulfide, Field-Filtered Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>		M - Hexane N - None O - AsNeO2 P - Na2OAS Q - NaZSO3 R - NaZSO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - DI Water W - pH 4.5 X - EDTA L - EDA Z - other (Specify)		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Z - other (Specify)			
TAT Requested (days):		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=wastohl, BT=Tissue, A=AM)	
303-736-0100(Tel) 303-431-7171(Fax)		6/1/16		09:15 Pacific		Water		Water	
PO #:		6/1/16		10:45 Pacific		Water		Water	
IWO #:		6/1/16		10:30 Pacific		Water		Water	
Project #:		6/1/16		12:00 Pacific		Water		Water	
58009703		6/1/16		14:30 Pacific		Water		Water	
SSOW#:		6/1/16		15:00 Pacific		Water		Water	
		6/1/16		16:30 Pacific		Water		Water	
		6/1/16		16:20 Pacific		Water		Water	
		6/1/16		17:45 Pacific		Water		Water	
Sample Identification - Client ID (Lab ID)		Special Instructions/Note:		Special Instructions/Note:		Special Instructions/Note:			
WCTSW001B-E1 (580-59976-1)									
WCTSW002B-E1 (580-59976-2)									
WCTSW003B-E1 (580-59976-3)									
USSW001-E1 (580-59976-4)									
BWSW001-E1 (580-59976-5)									
B001R-E1 (580-59976-6)									
HC002-E1 (580-59976-7)									
MW012-E1 (580-59976-8)									
MW009-E1 (580-59976-9)									
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Unconfirmed		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/>		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/>		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/>			
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:		Special Instructions/QC Requirements:		Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Date/Time:		Date/Time:		Date/Time:			
Relinquished by: Tom Blenk		6/2/16		6/3/16		9:40			
Relinquished by:		Date/Time:		Date/Time:		Date/Time:			
Relinquished by:		Date/Time:		Date/Time:		Date/Time:			
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) and Other Remarks:		Cooler Temperature(s) and Other Remarks:			
				Transfer by me 0.6 IRS 0.0					



ORIGIN ID:TCMA (253) 922-2310  
CATHY GAMBLE  
TESTAMERICA INC  
5755 8TH ST E

SHIP DATE: 02JUN16  
ACTWGT: 28.3 LB  
CAD: 989746/CAPE2912

FIFE, WA 98424  
UNITED STATES US

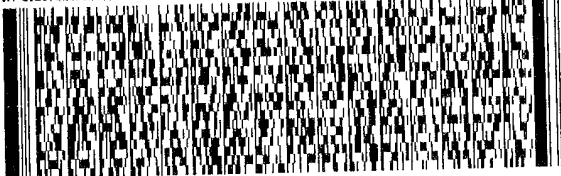
BILL RECIPIENT

TO SHIPPING/RECEIVING  
TESTAMERICA LABORATORIES, INC.  
4955 YARROW STREET

ARVADA CO 80002

(303) 736-0100

REF: S580-20326



FedEx  
Express



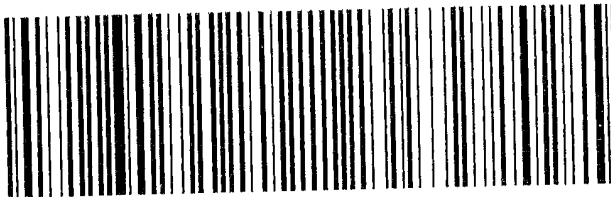
FRI - 03 JUN 10:30A  
PRIORITY OVERNIGHT

TRK# 6769 6810 0726  
0201

XH WHHA

80002  
CO-US DEN

Part # 1551434-434 BMT2 12/15 \*\*



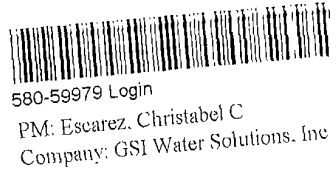
Login #: 580-59979 Date/Time Received: 6/3/16 940

Company Name & Sampling Site: JA Seattle

Time Zone: • EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER State:

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR)

Temp 0.0 IR# 5
CF +0.0 Initials [Signature]
Date: 06/03/16



Initials SPW

N/A Yes No

- 1. Is radioactivity at or below background? BKG.CPM: CPM-Reading:
2a. Is a custody seal present on the cooler?
2b. If yes, is the cooler's custody seal intact?
2c. Do cooler or samples appear to not have been compromised or tampered with?
3a. Were samples received on ice?
3b. Is cooler temperature acceptable?
3c. Has temperature been recorded?
4. Is COC present; filled out in ink and legible; and filled out with all pertinent information?
5. Is the Field Sampler's name present on the COC?
6a. Are there no discrepancies between the sample IDs and/or collection date and time on the containers and the COC?
6b. Are there no discrepancies between the container types and those listed on the COC?
7. Are samples received within Holding Time?
8. Do sample containers have legible labels?
9. Are all sample containers intact (not broken or leaking)?
10a. Are appropriate sample containers used?
10b. Are sample bottles completely filled? (Perchlorate bottles >= 1/3 head space)
10c. Is sufficient vol. for all requested analyses, incl. any requested MS/MSDs provided?
11. No splitting or compositing of samples required?
12. Do all VOA sample vials have no headspace or bubbles >6 mm (1/4") in diameter?
13. Were VOA vials labeled as preserved? HCl 0-6°C Sodium Thiosulfate Ascorbic Acid Other
14. Are all samples single phase? (i.e., no multiphasic samples are present.)

Login Checks:

- 15. Was a Priority Form completed for any short holds or quick TATs?
16. Were any tests logged for subcontract?
17. Were special archiving instructions and login instructions indicated in the Project Notes?

Initials

Note Archive Requirements:

- 18. Were multiple Series logged for this job?

Labeling and Storage Checks:

Initials

- DOE/DoD: Yes No Residual chlorine check required: Yes No Quarantined: Yes No
19. Was Sample Preservation verified and found to be correct? (excluding VOA, Oil & Grease, and TOC volumes)
20. Was Residual Chlorine checked and noted on the CUR if present?
21. If subcontract work was requested, was volume placed on sub shelf?
22. Were Terracore/Encores delivered to VOA lab?
23. Did the sample ID on TA label match the client's sample ID on container?
24. Were stickers for special archiving instructions affixed to each box?

Verified by:

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59976-1

**Login Number: 59976**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	False	sample #7 Amber 250ml for Diss Organic Carbon. Recieved Empty
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59976-1

**Login Number: 59976**

**List Number: 2**

**Creator: Soto, Mayra A**

**List Source: TestAmerica Denver**

**List Creation: 06/03/16 02:21 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59976-2  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
7/12/2016 5:01:36 PM  
Kristine Allen, Manager of Project Management  
(253)248-4970  
[kristine.allen@testamericainc.com](mailto:kristine.allen@testamericainc.com)

Designee for  
Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

1

2

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4

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7

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

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**Job ID: 580-59976-2**

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**Laboratory: TestAmerica Seattle**

## Narrative

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**Job Narrative**  
**580-59976-2**

## Comments

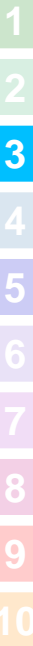
No additional comments.

## Receipt

The samples were received on 6/2/2016 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.2° C and 5.7° C.

## Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

## Qualifiers

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

**Client Sample ID: WCTSW001B-E1**

**Lab Sample ID: 580-59976-1**

**Date Collected: 06/01/16 09:15**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	41		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 11:01	1
Magnesium	83		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 11:01	1
Potassium	27		3.3	0.15	mg/L		07/11/16 17:37	07/12/16 11:01	1
Sodium	670		20	5.5	mg/L		07/11/16 17:37	07/12/16 14:29	10

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

**Client Sample ID: WCTSW002B-E1**

**Lab Sample ID: 580-59976-2**

**Date Collected: 06/01/16 10:45**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	33		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 11:27	1
Magnesium	59		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 11:27	1
Potassium	19		3.3	0.15	mg/L		07/11/16 17:37	07/12/16 11:27	1
Sodium	420		20	5.5	mg/L		07/11/16 17:37	07/12/16 14:33	10

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

**Client Sample ID: WCTSW003B-E1**

**Lab Sample ID: 580-59976-3**

**Date Collected: 06/01/16 10:30**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	35		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 11:30	1
Magnesium	59		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 11:30	1
Potassium	19		3.3	0.15	mg/L		07/11/16 17:37	07/12/16 11:30	1
Sodium	430		20	5.5	mg/L		07/11/16 17:37	07/12/16 14:36	10

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

**Client Sample ID: USSW001-E1**

**Lab Sample ID: 580-59976-4**

**Date Collected: 06/01/16 12:00**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	21		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 11:34	1
Magnesium	11		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 11:34	1
Potassium	2.3	J	3.3	0.15	mg/L		07/11/16 17:37	07/12/16 11:34	1
Sodium	10		2.0	0.55	mg/L		07/11/16 17:37	07/12/16 11:34	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

**Client Sample ID: BSW001-E1**

**Lab Sample ID: 580-59976-5**

**Date Collected: 06/01/16 14:30**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	280		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 11:37	1
Magnesium	900		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 11:37	1
Potassium	290		3.3	0.15	mg/L		07/11/16 17:37	07/12/16 11:37	1
Sodium	9400		200	55	mg/L		07/11/16 17:37	07/12/16 14:39	100

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

**Client Sample ID: B001R-E1**

**Lab Sample ID: 580-59976-6**

**Date Collected: 06/01/16 15:00**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	120		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 11:40	1
Magnesium	59		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 11:40	1
Potassium	52		3.3	0.15	mg/L		07/11/16 17:37	07/12/16 11:40	1
Sodium	100		2.0	0.55	mg/L		07/11/16 17:37	07/12/16 11:40	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

**Client Sample ID: HC002-E1**

**Lab Sample ID: 580-59976-7**

**Date Collected: 06/01/16 16:30**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	69		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 11:45	1
Magnesium	20		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 11:45	1
Potassium	28		3.3	0.15	mg/L		07/11/16 17:37	07/12/16 11:45	1
Sodium	55		2.0	0.55	mg/L		07/11/16 17:37	07/12/16 11:45	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

**Client Sample ID: MW012-E1**

**Lab Sample ID: 580-59976-8**

**Date Collected: 06/01/16 16:20**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	62		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 11:49	1
Magnesium	60		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 11:49	1
Potassium	50		3.3	0.15	mg/L		07/11/16 17:37	07/12/16 11:49	1
Sodium	310		20	5.5	mg/L		07/11/16 17:37	07/12/16 14:43	10

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

**Client Sample ID: MW009-E1**

**Lab Sample ID: 580-59976-9**

**Date Collected: 06/01/16 17:45**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	78		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 11:53	1
Magnesium	65		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 11:53	1
Potassium	30		3.3	0.15	mg/L		07/11/16 17:37	07/12/16 11:53	1
Sodium	130		2.0	0.55	mg/L		07/11/16 17:37	07/12/16 11:53	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-222076/20-A**  
**Matrix: Water**  
**Analysis Batch: 222170**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 222076**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
Calcium	ND		1.1	0.023	mg/L		07/11/16 17:37	07/12/16 10:52		1
Magnesium	ND		1.1	0.13	mg/L		07/11/16 17:37	07/12/16 10:52		1
Potassium	ND		3.3	0.15	mg/L		07/11/16 17:37	07/12/16 10:52		1
Sodium	ND		2.0	0.55	mg/L		07/11/16 17:37	07/12/16 10:52		1

**Lab Sample ID: LCS 580-222076/21-A**  
**Matrix: Water**  
**Analysis Batch: 222170**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 222076**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	20.7		mg/L		103	80 - 120
Magnesium	20.0	20.5		mg/L		103	80 - 120
Potassium	20.0	20.3		mg/L		102	80 - 120
Sodium	20.0	20.6		mg/L		103	80 - 120

**Lab Sample ID: LCSD 580-222076/22-A**  
**Matrix: Water**  
**Analysis Batch: 222170**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 222076**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	20.0	20.8		mg/L		104	80 - 120	0	20
Magnesium	20.0	20.4		mg/L		102	80 - 120	1	20
Potassium	20.0	20.5		mg/L		102	80 - 120	1	20
Sodium	20.0	20.8		mg/L		104	80 - 120	1	20

**Lab Sample ID: 580-59976-1 MS**  
**Matrix: Water**  
**Analysis Batch: 222170**

**Client Sample ID: WCTSW001B-E1**  
**Prep Type: Dissolved**  
**Prep Batch: 222076**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	41		20.0	60.7		mg/L		98	75 - 125
Magnesium	83		20.0	102	4	mg/L		95	75 - 125
Potassium	27		20.0	46.7		mg/L		99	75 - 125
Sodium	580		20.0	566	4	mg/L		-75	75 - 125

**Lab Sample ID: 580-59976-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 222170**

**Client Sample ID: WCTSW001B-E1**  
**Prep Type: Dissolved**  
**Prep Batch: 222076**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	41		20.0	60.1		mg/L		95	75 - 125	1	20
Magnesium	83		20.0	101	4	mg/L		90	75 - 125	1	20
Potassium	27		20.0	46.2		mg/L		97	75 - 125	1	20
Sodium	580		20.0	556	4	mg/L		-122	75 - 125	2	20

# QC Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

## Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 580-59976-1 DU  
 Matrix: Water  
 Analysis Batch: 222170

Client Sample ID: WCTSW001B-E1  
 Prep Type: Dissolved  
 Prep Batch: 222076

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Calcium	41		42.4		mg/L		3	20
Magnesium	83		86.2		mg/L		4	20
Potassium	27		27.9		mg/L		3	20
Sodium	580		578		mg/L		0.5	20



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

## Client Sample ID: WCTSW001B-E1

Lab Sample ID: 580-59976-1

Date Collected: 06/01/16 09:15

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 11:01	HJM	TAL SEA
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		10	222170	07/12/16 14:29	HJM	TAL SEA

## Client Sample ID: WCTSW002B-E1

Lab Sample ID: 580-59976-2

Date Collected: 06/01/16 10:45

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 11:27	HJM	TAL SEA
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		10	222170	07/12/16 14:33	HJM	TAL SEA

## Client Sample ID: WCTSW003B-E1

Lab Sample ID: 580-59976-3

Date Collected: 06/01/16 10:30

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 11:30	HJM	TAL SEA
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		10	222170	07/12/16 14:36	HJM	TAL SEA

## Client Sample ID: USSW001-E1

Lab Sample ID: 580-59976-4

Date Collected: 06/01/16 12:00

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 11:34	HJM	TAL SEA

## Client Sample ID: BWSW001-E1

Lab Sample ID: 580-59976-5

Date Collected: 06/01/16 14:30

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 11:37	HJM	TAL SEA
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		100	222170	07/12/16 14:39	HJM	TAL SEA

TestAmerica Seattle



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

**Client Sample ID: B001R-E1**

**Lab Sample ID: 580-59976-6**

Date Collected: 06/01/16 15:00

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 11:40	HJM	TAL SEA

**Client Sample ID: HC002-E1**

**Lab Sample ID: 580-59976-7**

Date Collected: 06/01/16 16:30

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 11:45	HJM	TAL SEA

**Client Sample ID: MW012-E1**

**Lab Sample ID: 580-59976-8**

Date Collected: 06/01/16 16:20

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 11:49	HJM	TAL SEA
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		10	222170	07/12/16 14:43	HJM	TAL SEA

**Client Sample ID: MW009-E1**

**Lab Sample ID: 580-59976-9**

Date Collected: 06/01/16 17:45

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222076	07/11/16 17:37	PAB	TAL SEA
Dissolved	Analysis	6010C		1	222170	07/12/16 11:53	HJM	TAL SEA

**Laboratory References:**

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

## Laboratory: TestAmerica Seattle

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

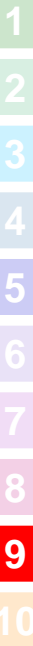


# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59976-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59976-1	WCTSW001B-E1	Water	06/01/16 09:15	06/02/16 09:10
580-59976-2	WCTSW002B-E1	Water	06/01/16 10:45	06/02/16 09:10
580-59976-3	WCTSW003B-E1	Water	06/01/16 10:30	06/02/16 09:10
580-59976-4	USSW001-E1	Water	06/01/16 12:00	06/02/16 09:10
580-59976-5	BWSW001-E1	Water	06/01/16 14:30	06/02/16 09:10
580-59976-6	B001R-E1	Water	06/01/16 15:00	06/02/16 09:10
580-59976-7	HC002-E1	Water	06/01/16 16:30	06/02/16 09:10
580-59976-8	MW012-E1	Water	06/01/16 16:20	06/02/16 09:10
580-59976-9	MW009-E1	Water	06/01/16 17:45	06/02/16 09:10



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59976-2

**Login Number: 59976**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	False	sample #7 Amber 250ml for Diss Organic Carbon. Recieved Empty
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59979-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/22/2016 1:58:58 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

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**Job ID: 580-59979-1**

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**Laboratory: TestAmerica Seattle**

## Narrative

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**Job Narrative**  
**580-59979-1**

## Comments

No additional comments.

## Receipt

The samples were received on 6/2/2016 9:10 AM; the samples arrived in good condition, properly preserved, and on ice. The temperatures of the 2 coolers at receipt time were 3.2° C and 5.7° C.

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# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
F1	MS and/or MSD Recovery is outside acceptance limits.
H	Sample was prepped or analyzed beyond the specified holding time

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

**Client Sample ID: B005R-E1**

**Lab Sample ID: 580-59979-1**

**Date Collected: 06/01/16 09:30**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.089		0.020	0.014	ug/L		06/04/16 14:05	06/08/16 17:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	86		44 - 125				06/04/16 14:05	06/08/16 17:07	1

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.47	HF			SU			06/02/16 14:49	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	18	F1	2.0	0.38	mg/L			06/13/16 11:45	2

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.54		0.20	0.030	mg/L			06/07/16 16:34	1
Nitrite as N	ND		0.40	0.080	mg/L			06/02/16 16:05	1
Chloride	28		0.90	0.040	mg/L			06/07/16 16:34	1
Nitrate as N	ND		0.20	0.020	mg/L			06/02/16 16:05	1
Bromide	ND		0.50	0.060	mg/L			06/07/16 16:34	1
Sulfate	ND		1.2	0.26	mg/L			06/07/16 16:34	1
Sulfide	0.029	J	0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	17		10	1.9	mg/L			06/20/16 15:58	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.48		0.10	0.10	mg/L			06/02/16 16:44	1
Bicarbonate Alkalinity as CaCO3	230		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
Alkalinity	230		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

**Client Sample ID: B006R-E1**

**Lab Sample ID: 580-59979-2**

**Date Collected: 06/01/16 11:25**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	120		20	3.8	mg/L			06/13/16 11:45	20

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	100		20	3.8	mg/L			06/20/16 15:58	20



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

**Client Sample ID: MW013-E1**

**Lab Sample ID: 580-59979-3**

Date Collected: 06/01/16 12:45

Matrix: Water

Date Received: 06/02/16 09:10

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	34000		5.0	1.4	ug/L		06/03/16 13:32	06/07/16 18:43	5

**Method: 6020A - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	36000		5.0	1.4	ug/L		06/03/16 13:32	06/07/16 18:47	5
Iron	120000		200	29	ug/L		06/03/16 13:32	06/07/16 18:47	5
Manganese	6500		10	1.8	ug/L		06/03/16 13:32	06/07/16 18:47	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	48		20	3.8	mg/L			06/13/16 11:45	20

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			06/07/16 16:48	1
Nitrite as N	ND		0.40	0.080	mg/L			06/02/16 16:48	1
Chloride	7.5		0.90	0.040	mg/L			06/07/16 16:48	1
Nitrate as N	ND		0.20	0.020	mg/L			06/02/16 16:48	1
Bromide	ND		0.50	0.060	mg/L			06/07/16 16:48	1
Sulfate	0.48	J	1.2	0.26	mg/L			06/07/16 16:48	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	43		20	3.8	mg/L			06/20/16 15:58	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.31		0.10	0.10	mg/L			06/02/16 16:44	1
Bicarbonate Alkalinity as CaCO3	550		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
Alkalinity	550		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

**Client Sample ID: MW010-E1**

**Lab Sample ID: 580-59979-4**

**Date Collected: 06/01/16 14:30**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>81</b>		20	3.8	mg/L			06/13/16 11:45	20

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Fluoride</b>	<b>0.67</b>		0.20	0.030	mg/L			06/07/16 17:17	1
Nitrite as N	ND		0.40	0.080	mg/L			06/02/16 17:03	1
<b>Chloride</b>	<b>13</b>		0.90	0.040	mg/L			06/07/16 17:17	1
Nitrate as N	ND		0.20	0.020	mg/L			06/02/16 17:03	1
Bromide	ND		0.50	0.060	mg/L			06/07/16 17:17	1
<b>Sulfate</b>	<b>0.59</b>	<b>J</b>	1.2	0.26	mg/L			06/07/16 17:17	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
<b>Dissolved Organic Carbon</b>	<b>75</b>		20	3.8	mg/L			06/20/16 15:58	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>ortho-Phosphate</b>	<b>0.50</b>		0.10	0.10	mg/L			06/02/16 16:44	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>650</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
<b>Alkalinity</b>	<b>650</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

**Client Sample ID: MW008-E2**

**Lab Sample ID: 580-59979-5**

**Date Collected: 06/01/16 15:40**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	62		20	3.8	mg/L			06/10/16 10:38	20

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	68		20	3.8	mg/L			06/20/16 15:58	20



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

**Client Sample ID: MW007-E1**

**Lab Sample ID: 580-59979-6**

**Date Collected: 06/01/16 17:45**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>64</b>		20	3.8	mg/L			06/10/16 10:38	20

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Fluoride</b>	<b>1.2</b>		0.20	0.030	mg/L			06/07/16 17:32	1
Nitrite as N	ND	H	4.0	0.80	mg/L			06/07/16 17:46	10
<b>Chloride</b>	<b>240</b>		9.0	0.40	mg/L			06/07/16 17:46	10
<b>Nitrate as N</b>	<b>0.14</b>	<b>J</b>	0.20	0.020	mg/L			06/02/16 17:17	1
<b>Bromide</b>	<b>0.49</b>	<b>J</b>	0.50	0.060	mg/L			06/07/16 17:32	1
<b>Sulfate</b>	<b>0.71</b>	<b>J</b>	1.2	0.26	mg/L			06/07/16 17:32	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
<b>Dissolved Organic Carbon</b>	<b>66</b>		20	3.8	mg/L			06/20/16 16:04	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>ortho-Phosphate</b>	<b>0.12</b>		0.10	0.10	mg/L			06/02/16 16:44	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>940</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1
<b>Alkalinity</b>	<b>940</b>		5.0	5.0	mg/L			06/02/16 18:14	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/16 18:14	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-218824/1-A**  
**Matrix: Water**  
**Analysis Batch: 219171**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 218824**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.020	0.014	ug/L		06/04/16 14:05	06/08/16 12:57	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	68		44 - 125				06/04/16 14:05	06/08/16 12:57	1

**Lab Sample ID: LCS 580-218824/2-A**  
**Matrix: Water**  
**Analysis Batch: 219171**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 218824**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	8.00	5.89		ug/L		74	30 - 149
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4,6-Tribromophenol	79		44 - 125				

**Lab Sample ID: LCSD 580-218824/3-A**  
**Matrix: Water**  
**Analysis Batch: 219171**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 218824**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	8.00	6.16		ug/L		77	30 - 149	4	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	79		44 - 125						

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 580-218752/21-A**  
**Matrix: Water**  
**Analysis Batch: 219109**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 218752**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.27	ug/L		06/03/16 13:32	06/07/16 16:46	1
Iron	ND		40	5.8	ug/L		06/03/16 13:32	06/07/16 16:46	1
Manganese	ND		2.0	0.35	ug/L		06/03/16 13:32	06/07/16 16:46	1

**Lab Sample ID: LCS 580-218752/22-A**  
**Matrix: Water**  
**Analysis Batch: 219109**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 218752**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4000	3910		ug/L		98	80 - 120
Iron	22000	21500		ug/L		98	80 - 120
Manganese	1000	940		ug/L		94	80 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

## Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-218752/23-A  
Matrix: Water  
Analysis Batch: 219109

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total Recoverable  
Prep Batch: 218752

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Arsenic	4000	3890		ug/L		97	80 - 120	0		20
Iron	22000	21700		ug/L		99	80 - 120	1		20
Manganese	1000	951		ug/L		95	80 - 120	1		20

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-219106/5  
Matrix: Water  
Analysis Batch: 219106

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrite as N	ND		0.40	0.080	mg/L			06/02/16 10:59	1
Nitrate as N	ND		0.20	0.020	mg/L			06/02/16 10:59	1

Lab Sample ID: LCS 580-219106/6  
Matrix: Water  
Analysis Batch: 219106

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	RPD
Nitrite as N	5.00	4.58		mg/L		92	90 - 110	
Nitrate as N	5.00	5.13		mg/L		103	90 - 110	

Lab Sample ID: LCSD 580-219106/7  
Matrix: Water  
Analysis Batch: 219106

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Nitrite as N	5.00	4.66		mg/L		93	90 - 110	2		15
Nitrate as N	5.00	5.10		mg/L		102	90 - 110	1		15

Lab Sample ID: MB 580-219110/3  
Matrix: Water  
Analysis Batch: 219110

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Fluoride	ND		0.20	0.030	mg/L			06/07/16 11:53	1
Chloride	ND		0.90	0.040	mg/L			06/07/16 11:53	1
Bromide	ND		0.50	0.060	mg/L			06/07/16 11:53	1
Sulfate	ND		1.2	0.26	mg/L			06/07/16 11:53	1

Lab Sample ID: LCS 580-219110/4  
Matrix: Water  
Analysis Batch: 219110

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	RPD
Fluoride	5.00	5.20		mg/L		104	90 - 110	
Chloride	50.0	54.2		mg/L		108	90 - 110	
Bromide	5.00	5.22		mg/L		104	90 - 110	
Sulfate	50.0	52.4		mg/L		105	90 - 110	

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

**Lab Sample ID:** LCSD 580-219110/28  
**Matrix:** Water  
**Analysis Batch:** 219110

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	
								RPD	Limit
Fluoride	5.00	5.21		mg/L		104	90 - 110	0	15
Chloride	50.0	54.2		mg/L		108	90 - 110	0	15
Bromide	5.00	5.16		mg/L		103	90 - 110	1	15
Sulfate	50.0	52.3		mg/L		105	90 - 110	0	15

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID:** MB 580-218686/1  
**Matrix:** Water  
**Analysis Batch:** 218686

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac

**Lab Sample ID:** LCS 580-218686/2  
**Matrix:** Water  
**Analysis Batch:** 218686

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

## Method: 9040B - pH

**Lab Sample ID:** 580-59979-1 DU  
**Matrix:** Water  
**Analysis Batch:** 218648

**Client Sample ID:** B005R-E1  
**Prep Type:** Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit

## Method: SM 2320B - Alkalinity

**Lab Sample ID:** LCS 580-218692/2  
**Matrix:** Water  
**Analysis Batch:** 218692

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID:** MB 280-328779/34  
**Matrix:** Water  
**Analysis Batch:** 328779

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

## Method: SM 4500 S2 D - Sulfide, Total (Continued)

**Lab Sample ID: MB 280-328779/63**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1

**Lab Sample ID: LCS 280-328779/32**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.444	0.429		mg/L		97	80 - 119

**Lab Sample ID: LCS 280-328779/61**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.444	0.430		mg/L		97	80 - 119

**Lab Sample ID: LCSD 280-328779/33**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.444	0.412		mg/L		93	80 - 119	4	10

**Lab Sample ID: LCSD 280-328779/62**

**Matrix: Water**

**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.444	0.412		mg/L		93	80 - 119	4	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-219388/1**

**Matrix: Water**

**Analysis Batch: 219388**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/10/16 10:38	1

**Lab Sample ID: LCS 580-219388/2**

**Matrix: Water**

**Analysis Batch: 219388**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.89		mg/L		99	85 - 115

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: 580-59979-5 MS**

**Matrix: Water**

**Analysis Batch: 219388**

**Client Sample ID: MW008-E2**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	62		200	258		mg/L		98	85 - 115

**Lab Sample ID: 580-59979-5 MSD**

**Matrix: Water**

**Analysis Batch: 219388**

**Client Sample ID: MW008-E2**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	62		200	262		mg/L		100	85 - 115	1	20

**Lab Sample ID: 580-59979-5 DU**

**Matrix: Water**

**Analysis Batch: 219388**

**Client Sample ID: MW008-E2**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	62		60.9		mg/L		1	20

**Lab Sample ID: MB 580-219624/1**

**Matrix: Water**

**Analysis Batch: 219624**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/13/16 11:45	1

**Lab Sample ID: LCS 580-219624/2**

**Matrix: Water**

**Analysis Batch: 219624**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	10.6		mg/L		106	85 - 115

**Lab Sample ID: 580-59979-1 MS**

**Matrix: Water**

**Analysis Batch: 219624**

**Client Sample ID: B005R-E1**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	18	F1	20.0	21.0	F1	mg/L		15	85 - 115

**Lab Sample ID: 580-59979-1 MSD**

**Matrix: Water**

**Analysis Batch: 219624**

**Client Sample ID: B005R-E1**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	18	F1	20.0	20.9	F1	mg/L		15	85 - 115	0	20

**Lab Sample ID: 580-59979-1 DU**

**Matrix: Water**

**Analysis Batch: 219624**

**Client Sample ID: B005R-E1**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	18	F1	18.9		mg/L		5	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-220353/1**

**Matrix: Water**

**Analysis Batch: 220353**

**Client Sample ID: Method Blank**

**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/20/16 15:58	1

**Lab Sample ID: LCS 580-220353/2**

**Matrix: Water**

**Analysis Batch: 220353**

**Client Sample ID: Lab Control Sample**

**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.7		mg/L		107	85 - 115

**Lab Sample ID: MB 580-220354/1**

**Matrix: Water**

**Analysis Batch: 220354**

**Client Sample ID: Method Blank**

**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/20/16 16:04	1

**Lab Sample ID: LCS 580-220354/2**

**Matrix: Water**

**Analysis Batch: 220354**

**Client Sample ID: Lab Control Sample**

**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.6		mg/L		106	85 - 115

**Lab Sample ID: 580-59979-6 MS**

**Matrix: Water**

**Analysis Batch: 220354**

**Client Sample ID: MW007-E1**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	66		200	286		mg/L		110	85 - 115

**Lab Sample ID: 580-59979-6 MSD**

**Matrix: Water**

**Analysis Batch: 220354**

**Client Sample ID: MW007-E1**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	66		200	285		mg/L		109	85 - 115	0	20

**Lab Sample ID: 580-59979-6 DU**

**Matrix: Water**

**Analysis Batch: 220354**

**Client Sample ID: MW007-E1**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	66		66.0		mg/L		0.7	20

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

**Client Sample ID: B005R-E1**

**Lab Sample ID: 580-59979-1**

Date Collected: 06/01/16 09:30

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218824	06/04/16 14:05	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		1	219171	06/08/16 17:07	D1R	TAL SEA
Dissolved	Analysis	300.0		1	219106	06/02/16 16:05	RSB	TAL SEA
Dissolved	Analysis	300.0		1	219110	06/07/16 16:34	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Total/NA	Analysis	9040B		1	218648	06/02/16 14:49	Z1T	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		10	220353	06/20/16 15:58	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	219624	06/13/16 11:45	Z1T	TAL SEA

**Client Sample ID: B006R-E1**

**Lab Sample ID: 580-59979-2**

Date Collected: 06/01/16 11:25

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		20	220353	06/20/16 15:58	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	219624	06/13/16 11:45	Z1T	TAL SEA

**Client Sample ID: MW013-E1**

**Lab Sample ID: 580-59979-3**

Date Collected: 06/01/16 12:45

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			218752	06/03/16 13:32	MKN	TAL SEA
Dissolved	Analysis	6020A		5	219109	06/07/16 18:47	FCW	TAL SEA
Total Recoverable	Prep	3005A			218752	06/03/16 13:32	MKN	TAL SEA
Total Recoverable	Analysis	6020A		5	219109	06/07/16 18:43	FCW	TAL SEA
Dissolved	Analysis	300.0		1	219106	06/02/16 16:48	RSB	TAL SEA
Dissolved	Analysis	300.0		1	219110	06/07/16 16:48	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		20	220353	06/20/16 15:58	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	219624	06/13/16 11:45	Z1T	TAL SEA

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

**Client Sample ID: MW010-E1**

**Lab Sample ID: 580-59979-4**

**Date Collected: 06/01/16 14:30**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	219106	06/02/16 17:03	RSB	TAL SEA
Dissolved	Analysis	300.0		1	219110	06/07/16 17:17	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		20	220353	06/20/16 15:58	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	219624	06/13/16 11:45	Z1T	TAL SEA

**Client Sample ID: MW008-E2**

**Lab Sample ID: 580-59979-5**

**Date Collected: 06/01/16 15:40**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		20	220353	06/20/16 15:58	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	219388	06/10/16 10:38	Z1T	TAL SEA

**Client Sample ID: MW007-E1**

**Lab Sample ID: 580-59979-6**

**Date Collected: 06/01/16 17:45**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	219106	06/02/16 17:17	RSB	TAL SEA
Dissolved	Analysis	300.0		1	219110	06/07/16 17:32	RSB	TAL SEA
Dissolved	Analysis	300.0		10	219106	06/07/16 17:46	RSB	TAL SEA
Dissolved	Analysis	300.0		10	219110	06/07/16 17:46	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218686	06/02/16 16:44	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218692	06/02/16 18:14	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		20	220354	06/20/16 16:04	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	219388	06/10/16 10:38	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
9040B		Water	pH
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59979-1	B005R-E1	Water	06/01/16 09:30	06/02/16 09:10
580-59979-2	B006R-E1	Water	06/01/16 11:25	06/02/16 09:10
580-59979-3	MW013-E1	Water	06/01/16 12:45	06/02/16 09:10
580-59979-4	MW010-E1	Water	06/01/16 14:30	06/02/16 09:10
580-59979-5	MW008-E2	Water	06/01/16 15:40	06/02/16 09:10
580-59979-6	MW007-E1	Water	06/01/16 17:45	06/02/16 09:10

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- 10
- 11



Loc: 580  
59979

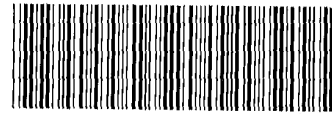
Field Sampler(s):  
GSI

GSI  
Water Systems, Inc.  
55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
Project Name: Parcel 15 - POT	SDG: _____	TestAmerica		Brooks
Project # or PO #: 603.002.010	Custody Seals intact?	Analysis Requested		
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	Total Organic Carbon		Brooks - Ben Wozniak- 206-753-6158
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C	Dissolved Organic Carbon (field filtered)		
Report to email: echughes@gslws.com, cryals@gslws.com	Therm ID No.: _____ Therm Exp. _____	Sulfide (dissolved; field filtered)		TestAmerica - Christabel Escarez- 253.248.4975
<b>Analysis Turnaround Time:</b>		Major Cations (dissolved; field filtered)*		
Standard 21 day TAT on Most Analyses		Major Anions, Alkalinity, Nitrate/Nitrite (dissolved; field filtered)**		Sample Specific Notes
Rush 5 day on Dissolved Metals (see notes)		Orthophosphate (dissolved; field filtered)		
		Arsenic (total)		
		Arsenic, Iron, and Manganese (dissolved; field filtered)		
		Pentachlorophenol and pH		
		Arsenic (total)		
		Arsenic, Iron, and Manganese (dissolved; field filtered)***		
		Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)		
		Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***		

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrite (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	Sample Specific Notes	
B005R-E1	6/1/16	930	544	G	W	9	X	X	X	X	X	X			X						
B006R-E1		1125	2223			3	X	X	X												
MW013-E1		1245	1115			8	X	X	X	X	X	X	X	X							no PCP
MW010-E1		1430	1360			9	X	X	X	X	X	X									
MW008-E2		1540	2163			3	X	X	X												
MW007-E1		1745	2342			7	X	X	X	X	X	X									



580-59979 Chain of Custody

TB Cooler Ice Cor 32 Unc 30  
Cooler Dsc 1g 5/10 @Lab  
Wet/Racks Packing Bubb  
C/O do 5/6

TB Cooler Ice Cor 5.7 Unc 5.7  
Cooler Dsc 1g 5/10 @Lab  
Wet/Racks Packing Bubb  
C/O do 6/0

<b>Possible Hazard Identification:</b>		<b>Sample Disposal</b> (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)	
Are samples hazardous? <u>B. Shell</u>	<u>6-2-16</u>	<u>0910</u>	<u>SEA TR</u>
If yes, select hazard(s):			<u>Number for GSI</u>
Received by:	Date/Time:	Relinquished by:	Date/Time:
Received by:	Date/Time:	Relinquished by:	Date/Time:
Received in Laboratory by:	Date/Time:	Shipped Via:	Tracking #:

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 \*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
 Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

**Chain of Custody Record**

<b>Client Information (Sub Contract Lab)</b> Client Contact: Escarez, Cristabel C Shipping/Receiving: christabel.escarez@testamericainc.com Company: TestAmerica Laboratories, Inc.		Lab P/N: Escarez, Cristabel C E-Mail: christabel.escarez@testamericainc.com		Carrier (Tracking No.): COC No: 580-38826.1 Page: Page 1 of 1 Job #: 580-59979-1	
Address: 4955 Yarrow Street City: Anvada State, Zip: CO, 80002 Phone: 303-736-0100 (Tel) 303-431-7171 (Fax) Email:		Due Date Requested: 6/18/2016 TAT Requested (days): PO #: WO #: Project #: 58009703 SSOV#:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP/ Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Z - other (specify)	
Sample Information - Client ID (Lab ID)		Field Filtered Sample (Yes or No)		Perform/MS/MSD (Yes or No)	
Sample Date Sample Time Sample Type (C=Comp, G=grab) Matrix (W=water, S=solid, O=wasteoil) Preservation Code		Analysis Requested		Total Number of Containers	
B005R-E1 (580-59979-1)	6/1/16	09:30 Pacific	Water	X	X
B006R-E1 (580-59979-2)	6/1/16	11:25 Pacific	Water	X	X
MW013-E1 (580-59979-3)	6/1/16	12:45 Pacific	Water	X	X
MW010-E1 (580-59979-4)	6/1/16	14:30 Pacific	Water	X	X
MW008-E2 (580-59979-5)	6/1/16	15:40 Pacific	Water	X	X
MW007-E1 (580-59979-6)	6/1/16	17:45 Pacific	Water	X	X
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/OC Requirements:					
Empty Kit Relinquished by:		Date:		Method of Shipment:	
Relinquished by: Tony Stewart		Date: 6/2/16		Company: TA-Sea	
Relinquished by:		Date:		Company:	
Relinquished by:		Date:		Company:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) and Other Remarks: Transferring 0.6 IR 5-0.0	



Login #: 600-131802

Company Name & Sampling Site: TA Houston

Date/Time Received: 6/3/16

Sample Receiver: 940

Time Zone: • EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR)

State:

Temp 1.0 IR# 5  
CF +0.0 Initials [Signature]  
Date: 06/03/16



600-131802 Login  
PM: Tigrett, Lance C  
Company: Fastex Environmental Laboratory

N/A Yes No

- 1. Is radioactivity at or below background? BKG CPM: \_\_\_\_\_
- 2a. Is a custody seal present on the cooler? CPM Reading: \_\_\_\_\_ Initials: \_\_\_\_\_
- 2b. If yes, is the cooler's custody seal intact?
- 2c. Do cooler or samples appear to not have been compromised or tampered with?
- 3a. Were samples received on ice?
- 3b. Is cooler temperature acceptable?
- 3c. Has temperature been recorded?
- 4. Is COC present; filled out in ink and legible; and filled out with all pertinent information?
- 5. Is the Field Sampler's name present on the COC?
- 6a. Are there no discrepancies between the sample IDs and/or collection date and time on the containers and the COC?
- 6b. Are there no discrepancies between the container types and those listed on the COC?
- 7. Are samples received within Holding Time?
- 8. Do sample containers have legible labels?
- 9. Are all sample containers intact (not broken or leaking)?
- 10a. Are appropriate sample containers used?
- 10b. Are sample bottles completely filled? (Perchlorate bottles ≥ 1/3 head space)
- 10c. Is sufficient vol. for all requested analyses, incl. any requested MS/MSDs provided?
- 11. No splitting or compositing of samples required?
- 12. Do all VOA sample vials have no headspace or bubbles >6 mm (1/4") in diameter?
- 13. Were VOA vials labeled as preserved?  HCl  0-6°C  Sodium Thiosulfate  Ascorbic Acid  Other
- 14. Are all samples single phase? (i.e., no multiphasic samples are present.)

Login Checks:

- 15. Was a Priority Form completed for any short holds or quick TATs?
- 16. Were any tests logged for subcontract?
- 17. Were special archiving instructions and login instructions indicated in the Project Notes?

Initials

Note Archive Requirements:

- 18. Were multiple Series logged for this job?

Labeling and Storage Checks:

- DOE/DoD:  Yes  No
- 19. Was Sample Preservation verified and found to be correct? Residual chlorine check required:  Yes  No
- 20. Was Residual Chlorine checked and noted on the CUR if present? (excluding VOA, Oil & Grease, and TOC volumes) Quarantined:  Yes  No
- 21. If subcontract work was requested, was volume placed on sub shelf?
- 22. Were Terracore/Encores delivered to VOA lab?
- 23. Did the sample ID on TA label match the client's sample ID on container?
- 24. Were stickers for special archiving instructions affixed to each box?

Verified by: \_\_\_\_\_

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59979-1

**Login Number: 59979**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59979-1

**Login Number: 59979**

**List Number: 2**

**Creator: Soto, Mayra A**

**List Source: TestAmerica Denver**

**List Creation: 06/03/16 02:21 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

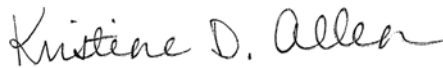
## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-59979-3  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
7/14/2016 2:54:38 PM  
Kristine Allen, Manager of Project Management  
(253)248-4970  
[kristine.allen@testamericainc.com](mailto:kristine.allen@testamericainc.com)

Designee for  
Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-3

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**Job ID: 580-59979-3**

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**Laboratory: TestAmerica Seattle**

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**Narrative**

**Job Narrative**  
**580-59979-3**

**Comments**

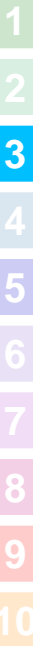
No additional comments.

**Receipt**

The samples were received on 6/2/2016 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.2° C and 5.7° C.

**Metals**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.





## Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-3

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-3

**Client Sample ID: B005R-E1**

**Lab Sample ID: 580-59979-1**

**Date Collected: 06/01/16 09:30**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	18		1.1	0.023	mg/L		07/12/16 10:35	07/13/16 11:44	1
Magnesium	22		1.1	0.13	mg/L		07/12/16 10:35	07/13/16 11:44	1
Potassium	13		3.3	0.15	mg/L		07/12/16 10:35	07/13/16 11:44	1
Sodium	58		2.0	0.55	mg/L		07/12/16 10:35	07/13/16 11:44	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-3

**Client Sample ID: MW013-E1**

**Lab Sample ID: 580-59979-3**

**Date Collected: 06/01/16 12:45**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110		1.1	0.023	mg/L		07/12/16 10:35	07/13/16 11:47	1
Magnesium	37		1.1	0.13	mg/L		07/12/16 10:35	07/13/16 11:47	1
Potassium	35		3.3	0.15	mg/L		07/12/16 10:35	07/13/16 11:47	1
Sodium	78		2.0	0.55	mg/L		07/12/16 10:35	07/13/16 11:47	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-3

**Client Sample ID: MW010-E1**

**Lab Sample ID: 580-59979-4**

**Date Collected: 06/01/16 14:30**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	150		1.1	0.023	mg/L		07/12/16 10:35	07/13/16 11:51	1
Magnesium	100		1.1	0.13	mg/L		07/12/16 10:35	07/13/16 11:51	1
Potassium	35		3.3	0.15	mg/L		07/12/16 10:35	07/13/16 11:51	1
Sodium	190		2.0	0.55	mg/L		07/12/16 10:35	07/13/16 11:51	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-3

**Client Sample ID: MW007-E1**

**Lab Sample ID: 580-59979-6**

**Date Collected: 06/01/16 17:45**

**Matrix: Water**

**Date Received: 06/02/16 09:10**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	160		1.1	0.023	mg/L		07/12/16 10:35	07/13/16 11:54	1
Magnesium	110		1.1	0.13	mg/L		07/12/16 10:35	07/13/16 11:54	1
Potassium	37		3.3	0.15	mg/L		07/12/16 10:35	07/13/16 11:54	1
Sodium	200		2.0	0.55	mg/L		07/12/16 10:35	07/13/16 11:54	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-3

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-222120/19-A**  
**Matrix: Water**  
**Analysis Batch: 222300**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 222120**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		07/12/16 10:35	07/13/16 11:07	1
Magnesium	ND		1.1	0.13	mg/L		07/12/16 10:35	07/13/16 11:07	1
Potassium	ND		3.3	0.15	mg/L		07/12/16 10:35	07/13/16 11:07	1
Sodium	ND		2.0	0.55	mg/L		07/12/16 10:35	07/13/16 11:07	1

**Lab Sample ID: LCS 580-222120/20-A**  
**Matrix: Water**  
**Analysis Batch: 222300**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 222120**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	22.0		mg/L		110	80 - 120
Magnesium	20.0	21.8		mg/L		109	80 - 120
Potassium	20.0	21.6		mg/L		108	80 - 120
Sodium	20.0	21.8		mg/L		109	80 - 120

**Lab Sample ID: LCSD 580-222120/21-A**  
**Matrix: Water**  
**Analysis Batch: 222300**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 222120**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	20.0	22.0		mg/L		110	80 - 120	0	20
Magnesium	20.0	21.8		mg/L		109	80 - 120	0	20
Potassium	20.0	21.5		mg/L		108	80 - 120	0	20
Sodium	20.0	21.7		mg/L		108	80 - 120	1	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-3

**Client Sample ID: B005R-E1**

**Lab Sample ID: 580-59979-1**

Date Collected: 06/01/16 09:30

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222120	07/12/16 10:35	MKN	TAL SEA
Dissolved	Analysis	6010C		1	222300	07/13/16 11:44	HJM	TAL SEA

**Client Sample ID: MW013-E1**

**Lab Sample ID: 580-59979-3**

Date Collected: 06/01/16 12:45

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222120	07/12/16 10:35	MKN	TAL SEA
Dissolved	Analysis	6010C		1	222300	07/13/16 11:47	HJM	TAL SEA

**Client Sample ID: MW010-E1**

**Lab Sample ID: 580-59979-4**

Date Collected: 06/01/16 14:30

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222120	07/12/16 10:35	MKN	TAL SEA
Dissolved	Analysis	6010C		1	222300	07/13/16 11:51	HJM	TAL SEA

**Client Sample ID: MW007-E1**

**Lab Sample ID: 580-59979-6**

Date Collected: 06/01/16 17:45

Matrix: Water

Date Received: 06/02/16 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222120	07/12/16 10:35	MKN	TAL SEA
Dissolved	Analysis	6010C		1	222300	07/13/16 11:54	HJM	TAL SEA

**Laboratory References:**

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-3

## Laboratory: TestAmerica Seattle

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10



# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-59979-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-59979-1	B005R-E1	Water	06/01/16 09:30	06/02/16 09:10
580-59979-3	MW013-E1	Water	06/01/16 12:45	06/02/16 09:10
580-59979-4	MW010-E1	Water	06/01/16 14:30	06/02/16 09:10
580-59979-6	MW007-E1	Water	06/01/16 17:45	06/02/16 09:10

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## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-59979-3

**Login Number: 59979**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-60006-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/23/2016 4:29:11 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Job ID: 580-60006-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-60006-1

#### Receipt

The samples were received on 6/2/2016 3:48 PM; the samples arrived in good condition, properly preserved, and on ice. The temperatures of the 3 coolers at receipt time were 5.6° C, 6.2° C and 8.5° C. The temperatures are considered acceptable as the samples were received on the same day of collection and there is evidence the chilling process has begun.

#### Receipt Exceptions

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): WCTPW001B-10-E1 (580-60006-2). The container labels list WCTPW001B-40, while the COC lists WCTPW001B-10-E1. There is also no date or time on the sample container. The only other identifier on the container is "Total As". This sample has been logged in as WCTPW001B-10-E1 due to the fact that is the only sample requesting Total As on the COC.

#### Metals

Method(s) 6010C: The method blank for preparation batch 580-220033 and analytical batch 580-220361 contained Calcium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0: Samples WCTPW001A-10-E1 (580-60006-4), WCTPW002B-40-E1 (580-60006-5), WCTPW002B-10-E1 (580-60006-6), WCTPW002A-40-E1 (580-60006-7), WCTPW002A-10-E1 (580-60006-8), WCTPW003B-10-E1 (580-60006-9) and WCTPW003A-10-E1 (580-60006-10) required a dilution due to the high level of Chloride and may have diluted out other analytes. The samples can't be run at a lower level due to possible damage to the instrument.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW001B-40-E1**

**Lab Sample ID: 580-60006-1**

Date Collected: 06/02/16 08:56

Matrix: Water

Date Received: 06/02/16 15:48

### Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	80	B	22	0.46	mg/L		06/16/16 14:05	06/20/16 13:02	20
Magnesium	200		22	2.7	mg/L		06/16/16 14:05	06/20/16 13:02	20
Potassium	79		66	2.9	mg/L		06/16/16 14:05	06/20/16 13:02	20
Sodium	1800		40	11	mg/L		06/16/16 14:05	06/20/16 13:02	20

### Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	43		5.0	1.4	ug/L		06/16/16 14:05	06/17/16 12:42	5
Iron	18000		200	29	ug/L		06/16/16 14:05	06/17/16 12:42	5
Manganese	1200		10	1.8	ug/L		06/16/16 14:05	06/17/16 12:42	5

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	24		20	3.8	mg/L			06/09/16 13:28	20

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 15:04	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 15:04	100
Chloride	6400		180	8.0	mg/L			06/07/16 18:29	200
Nitrate as N	ND		20	2.0	mg/L			06/03/16 15:04	100
Bromide	ND		50	6.0	mg/L			06/03/16 15:04	100
Sulfate	1000		120	26	mg/L			06/03/16 15:04	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	5.8		1.0	0.19	mg/L			06/20/16 16:04	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/03/16 14:29	1
Bicarbonate Alkalinity as CaCO3	91		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1
Alkalinity	91		5.0	5.0	mg/L			06/04/16 17:07	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW001B-10-E1**

**Lab Sample ID: 580-60006-2**

**Date Collected: 06/02/16 09:15**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	130	B	22	0.46	mg/L		06/16/16 14:05	06/20/16 13:05	20
Magnesium	360		22	2.7	mg/L		06/16/16 14:05	06/20/16 13:05	20
Potassium	130		66	2.9	mg/L		06/16/16 14:05	06/20/16 13:05	20
Sodium	3100		40	11	mg/L		06/16/16 14:05	06/20/16 13:05	20

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	28		5.0	1.4	ug/L		06/16/16 14:05	06/17/16 12:51	5

**Method: 6020A - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	35		5.0	1.4	ug/L		06/16/16 14:05	06/17/16 12:46	5
Iron	12000		200	29	ug/L		06/16/16 14:05	06/17/16 12:46	5
Manganese	820		10	1.8	ug/L		06/16/16 14:05	06/17/16 12:46	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	8.7		1.0	0.19	mg/L			06/09/16 13:56	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 15:18	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 15:18	100
Chloride	8900		180	8.0	mg/L			06/07/16 18:44	200
Nitrate as N	ND		20	2.0	mg/L			06/03/16 15:18	100
Bromide	ND		50	6.0	mg/L			06/03/16 15:18	100
Sulfate	1600		120	26	mg/L			06/03/16 15:18	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	14		1.0	0.19	mg/L			06/20/16 16:04	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/03/16 14:29	1
Bicarbonate Alkalinity as CaCO3	190		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1
Alkalinity	190		5.0	5.0	mg/L			06/04/16 17:07	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW001A-40-E1**

**Lab Sample ID: 580-60006-3**

**Date Collected: 06/02/16 09:45**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

### Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	73	B	11	0.23	mg/L		06/16/16 14:05	06/20/16 13:11	10
Magnesium	65		11	1.3	mg/L		06/16/16 14:05	06/20/16 13:11	10
Potassium	27	J	33	1.5	mg/L		06/16/16 14:05	06/20/16 13:11	10
Sodium	270		20	5.5	mg/L		06/16/16 14:05	06/20/16 13:11	10

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	57		20	3.8	mg/L			06/09/16 13:28	20

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.89		0.20	0.030	mg/L			06/03/16 15:33	1
Nitrite as N	ND		0.40	0.080	mg/L			06/03/16 15:33	1
Chloride	390		90	4.0	mg/L			06/07/16 18:58	100
Nitrate as N	0.11	J	0.20	0.020	mg/L			06/03/16 15:33	1
Bromide	ND		0.50	0.060	mg/L			06/03/16 15:33	1
Sulfate	13		1.2	0.26	mg/L			06/03/16 15:33	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	59		20	3.8	mg/L			06/20/16 16:04	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/03/16 14:29	1
Bicarbonate Alkalinity as CaCO3	710		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1
Alkalinity	710		5.0	5.0	mg/L			06/04/16 17:07	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW001A-10-E1**

**Lab Sample ID: 580-60006-4**

**Date Collected: 06/02/16 10:15**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	200	B	22	0.46	mg/L		06/16/16 14:05	06/20/16 13:15	20
Magnesium	550		22	2.7	mg/L		06/16/16 14:05	06/20/16 13:15	20
Potassium	160		66	2.9	mg/L		06/16/16 14:05	06/20/16 13:15	20
Sodium	3800		40	11	mg/L		06/16/16 14:05	06/20/16 13:15	20

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	21		20	3.8	mg/L			06/09/16 13:28	20

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 15:47	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 15:47	100
Chloride	11000		180	8.0	mg/L			06/07/16 19:13	200
Nitrate as N	ND		20	2.0	mg/L			06/03/16 15:47	100
Bromide	ND		50	6.0	mg/L			06/03/16 15:47	100
Sulfate	1800		120	26	mg/L			06/03/16 15:47	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	26		2.0	0.38	mg/L			06/20/16 16:04	2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/03/16 14:29	1
Bicarbonate Alkalinity as CaCO3	170		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1
Alkalinity	170		5.0	5.0	mg/L			06/04/16 17:07	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW002B-40-E1**

**Lab Sample ID: 580-60006-5**

**Date Collected: 06/02/16 10:45**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	120	B	22	0.46	mg/L		06/16/16 14:05	06/20/16 13:28	20
Magnesium	320		22	2.7	mg/L		06/16/16 14:05	06/20/16 13:28	20
Potassium	100		66	2.9	mg/L		06/16/16 14:05	06/20/16 13:28	20
Sodium	2600		40	11	mg/L		06/16/16 14:05	06/20/16 13:28	20

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	6.1		1.0	0.19	mg/L			06/09/16 13:56	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 16:02	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 16:02	100
Chloride	4800		90	4.0	mg/L			06/03/16 16:02	100
Nitrate as N	ND		20	2.0	mg/L			06/03/16 16:02	100
Bromide	ND		50	6.0	mg/L			06/03/16 16:02	100
Sulfate	610		120	26	mg/L			06/03/16 16:02	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	7.7		1.0	0.19	mg/L			06/20/16 16:04	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/03/16 14:29	1
Bicarbonate Alkalinity as CaCO3	140		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1
Alkalinity	140		5.0	5.0	mg/L			06/04/16 17:07	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW002B-10-E1**

**Lab Sample ID: 580-60006-6**

**Date Collected: 06/02/16 11:20**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	120	B	22	0.46	mg/L		06/16/16 14:05	06/20/16 13:31	20
Magnesium	350		22	2.7	mg/L		06/16/16 14:05	06/20/16 13:31	20
Potassium	120		66	2.9	mg/L		06/16/16 14:05	06/20/16 13:31	20
Sodium	2800		40	11	mg/L		06/16/16 14:05	06/20/16 13:31	20

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	10		1.0	0.19	mg/L			06/09/16 13:56	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 16:16	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 16:16	100
Chloride	4400		90	4.0	mg/L			06/03/16 16:16	100
Nitrate as N	ND		20	2.0	mg/L			06/03/16 16:16	100
Bromide	ND		50	6.0	mg/L			06/03/16 16:16	100
Sulfate	560		120	26	mg/L			06/03/16 16:16	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	5.3		1.0	0.19	mg/L			06/20/16 16:04	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/03/16 14:29	1
Bicarbonate Alkalinity as CaCO3	88		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1
Alkalinity	88		5.0	5.0	mg/L			06/04/16 17:07	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW002A-40-E1**

**Lab Sample ID: 580-60006-7**

**Date Collected: 06/02/16 11:45**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	76	B	22	0.46	mg/L		06/16/16 14:05	06/20/16 13:34	20
Magnesium	220		22	2.7	mg/L		06/16/16 14:05	06/20/16 13:34	20
Potassium	98		66	2.9	mg/L		06/16/16 14:05	06/20/16 13:34	20
Sodium	1900		40	11	mg/L		06/16/16 14:05	06/20/16 13:34	20

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	4.1		1.0	0.19	mg/L			06/09/16 13:56	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 16:30	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 16:30	100
Chloride	5400		90	4.0	mg/L			06/03/16 16:30	100
Nitrate as N	ND		20	2.0	mg/L			06/03/16 16:30	100
Bromide	ND		50	6.0	mg/L			06/03/16 16:30	100
Sulfate	690		120	26	mg/L			06/03/16 16:30	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1
Dissolved Organic Carbon	4.9		1.0	0.19	mg/L			06/20/16 16:04	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/03/16 14:29	1
Bicarbonate Alkalinity as CaCO3	68		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1
Alkalinity	68		5.0	5.0	mg/L			06/04/16 17:07	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW002A-10-E1**

**Lab Sample ID: 580-60006-8**

**Date Collected: 06/02/16 12:30**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	150	B	22	0.46	mg/L		06/16/16 14:05	06/20/16 13:38	20
Magnesium	420		22	2.7	mg/L		06/16/16 14:05	06/20/16 13:38	20
Potassium	130		66	2.9	mg/L		06/16/16 14:05	06/20/16 13:38	20
Sodium	3400		40	11	mg/L		06/16/16 14:05	06/20/16 13:38	20

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 16:45	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 16:45	100
Chloride	13000		180	8.0	mg/L			06/07/16 19:27	200
Nitrate as N	ND		20	2.0	mg/L			06/03/16 16:45	100
Bromide	ND		50	6.0	mg/L			06/03/16 16:45	100
Sulfate	2300		120	26	mg/L			06/03/16 16:45	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 16:00	1
Dissolved Organic Carbon	2.4		1.0	0.19	mg/L			06/20/16 16:04	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/03/16 14:29	1
Bicarbonate Alkalinity as CaCO3	100		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1
Alkalinity	100		5.0	5.0	mg/L			06/04/16 17:07	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW003B-10-E1**

**Lab Sample ID: 580-60006-9**

**Date Collected: 06/02/16 12:45**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	31	B	11	0.23	mg/L		06/16/16 14:05	06/20/16 13:44	10
Magnesium	71		11	1.3	mg/L		06/16/16 14:05	06/20/16 13:44	10
Potassium	34		33	1.5	mg/L		06/16/16 14:05	06/20/16 13:44	10
Sodium	560		20	5.5	mg/L		06/16/16 14:05	06/20/16 13:44	10

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	11		1.0	0.19	mg/L			06/09/16 13:56	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 16:59	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 16:59	100
Chloride	1600		90	4.0	mg/L			06/03/16 16:59	100
Nitrate as N	ND		20	2.0	mg/L			06/03/16 16:59	100
Bromide	ND		50	6.0	mg/L			06/03/16 16:59	100
Sulfate	190		120	26	mg/L			06/03/16 16:59	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 16:00	1
Dissolved Organic Carbon	13		1.0	0.19	mg/L			06/20/16 16:04	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/03/16 14:29	1
Bicarbonate Alkalinity as CaCO3	240		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1
Alkalinity	240		5.0	5.0	mg/L			06/04/16 17:07	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW003A-10-E1**

**Lab Sample ID: 580-60006-10**

**Date Collected: 06/02/16 13:00**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	160	B	22	0.46	mg/L		06/16/16 14:05	06/20/16 13:48	20
Magnesium	330		22	2.7	mg/L		06/16/16 14:05	06/20/16 13:48	20
Potassium	100		66	2.9	mg/L		06/16/16 14:05	06/20/16 13:48	20
Sodium	2300		40	11	mg/L		06/16/16 14:05	06/20/16 13:48	20

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	5.4		1.0	0.19	mg/L			06/09/16 13:56	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 17:14	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 17:14	100
Chloride	6800		90	4.0	mg/L			06/03/16 17:14	100
Nitrate as N	ND		20	2.0	mg/L			06/03/16 17:14	100
Bromide	ND		50	6.0	mg/L			06/03/16 17:14	100
Sulfate	920		120	26	mg/L			06/03/16 17:14	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 16:00	1
Dissolved Organic Carbon	6.1	F1	1.0	0.19	mg/L			06/20/16 16:12	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/03/16 14:29	1
Bicarbonate Alkalinity as CaCO3	140		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1
Alkalinity	140		5.0	5.0	mg/L			06/04/16 17:07	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW5MB-E1**

**Lab Sample ID: 580-60006-11**

**Date Collected: 06/02/16 14:30**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	9.3		1.0	0.19	mg/L			06/09/16 13:56	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.080	mg/L			06/03/16 17:57	1
Nitrate as N	0.13	J	0.20	0.020	mg/L			06/03/16 17:57	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 16:00	1
Dissolved Organic Carbon	8.8		1.0	0.19	mg/L			06/20/16 16:12	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

## Method: 6010C - Metals (ICP)

Lab Sample ID: MB 580-220033/21-A  
Matrix: Water  
Analysis Batch: 220361

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 220033

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.0330	J	1.1	0.023	mg/L		06/16/16 14:06	06/20/16 12:14	1
Magnesium	ND		1.1	0.13	mg/L		06/16/16 14:06	06/20/16 12:14	1
Potassium	ND		3.3	0.15	mg/L		06/16/16 14:06	06/20/16 12:14	1
Sodium	ND		2.0	0.55	mg/L		06/16/16 14:06	06/20/16 12:14	1

Lab Sample ID: LCS 580-220033/22-A  
Matrix: Water  
Analysis Batch: 220361

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 220033

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	19.6		mg/L		98	80 - 120
Magnesium	20.0	19.0		mg/L		95	80 - 120
Potassium	20.0	19.2		mg/L		96	80 - 120
Sodium	20.0	19.1		mg/L		95	80 - 120

Lab Sample ID: LCSD 580-220033/23-A  
Matrix: Water  
Analysis Batch: 220361

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total Recoverable  
Prep Batch: 220033

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	20.0	20.4		mg/L		102	80 - 120	4	20
Magnesium	20.0	19.6		mg/L		98	80 - 120	3	20
Potassium	20.0	20.0		mg/L		100	80 - 120	4	20
Sodium	20.0	19.4		mg/L		97	80 - 120	2	20

## Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-220033/21-A  
Matrix: Water  
Analysis Batch: 220136

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 220033

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	1.4	ug/L		06/16/16 14:06	06/17/16 11:28	5
Iron	ND		200	29	ug/L		06/16/16 14:06	06/17/16 11:28	5
Manganese	ND		10	1.8	ug/L		06/16/16 14:06	06/17/16 11:28	5

Lab Sample ID: LCS 580-220033/22-A  
Matrix: Water  
Analysis Batch: 220136

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 220033

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4000	4170		ug/L		104	80 - 120
Iron	22000	23400		ug/L		106	80 - 120
Manganese	1000	1030		ug/L		103	80 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

## Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-220033/23-A  
Matrix: Water  
Analysis Batch: 220136

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total Recoverable  
Prep Batch: 220033

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4000	4250		ug/L		106	80 - 120	2	20
Iron	22000	24200		ug/L		110	80 - 120	3	20
Manganese	1000	1070		ug/L		107	80 - 120	3	20

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-218886/3  
Matrix: Water  
Analysis Batch: 218886

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.080	mg/L			06/03/16 13:51	1
Nitrate as N	ND		0.20	0.020	mg/L			06/03/16 13:51	1

Lab Sample ID: LCS 580-218886/4  
Matrix: Water  
Analysis Batch: 218886

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	5.00	4.98		mg/L		100	90 - 110
Nitrate as N	5.00	4.96		mg/L		99	90 - 110

Lab Sample ID: LCSD 580-218886/5  
Matrix: Water  
Analysis Batch: 218886

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	5.00	5.06		mg/L		101	90 - 110	2	15
Nitrate as N	5.00	4.94		mg/L		99	90 - 110	0	15

Lab Sample ID: MB 580-219105/3  
Matrix: Water  
Analysis Batch: 219105

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			06/03/16 13:51	1
Chloride	ND		0.90	0.040	mg/L			06/03/16 13:51	1
Bromide	ND		0.50	0.060	mg/L			06/03/16 13:51	1
Sulfate	ND		1.2	0.26	mg/L			06/03/16 13:51	1

Lab Sample ID: LCS 580-219105/4  
Matrix: Water  
Analysis Batch: 219105

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	4.98		mg/L		100	90 - 110
Chloride	50.0	50.2		mg/L		100	90 - 110
Bromide	5.00	5.07		mg/L		101	90 - 110
Sulfate	50.0	49.6		mg/L		99	90 - 110

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Lab Sample ID: LCSD 580-219105/5**  
**Matrix: Water**  
**Analysis Batch: 219105**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec.		RPD	Limit
		Result	Qualifier				Limits	RPD		
Fluoride	5.00	4.98		mg/L		100	90 - 110	0	15	
Chloride	50.0	50.2		mg/L		100	90 - 110	0	15	
Bromide	5.00	5.06		mg/L		101	90 - 110	0	15	
Sulfate	50.0	49.5		mg/L		99	90 - 110	0	15	

**Lab Sample ID: 580-60006-11 MS**  
**Matrix: Water**  
**Analysis Batch: 218886**

**Client Sample ID: WCTPW5MB-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec.		RPD	Limit
				Result	Qualifier				Limits	RPD		
Nitrite as N	ND		5.00	5.36		mg/L		107	90 - 110			
Nitrate as N	0.13	J	5.00	5.38		mg/L		105	90 - 110			

**Lab Sample ID: 580-60006-11 MSD**  
**Matrix: Water**  
**Analysis Batch: 218886**

**Client Sample ID: WCTPW5MB-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec.		RPD	Limit
				Result	Qualifier				Limits	RPD		
Nitrite as N	ND		5.00	5.19		mg/L		104	90 - 110	3	15	
Nitrate as N	0.13	J	5.00	5.17		mg/L		101	90 - 110	4	15	

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID: MB 580-218769/1**  
**Matrix: Water**  
**Analysis Batch: 218769**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB		RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
ortho-Phosphate	ND		0.10	0.10	mg/L			06/03/16 14:29	1

**Lab Sample ID: LCS 580-218769/2**  
**Matrix: Water**  
**Analysis Batch: 218769**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec.		RPD	Limit
		Result	Qualifier				Limits	RPD		
ortho-Phosphate	2.00	2.08		mg/L		104	90 - 110			

**Lab Sample ID: 580-60006-1 MS**  
**Matrix: Water**  
**Analysis Batch: 218769**

**Client Sample ID: WCTPW001B-40-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec.		RPD	Limit
				Result	Qualifier				Limits	RPD		
ortho-Phosphate	ND		2.00	1.91		mg/L		96	80 - 120			

**Lab Sample ID: 580-60006-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 218769**

**Client Sample ID: WCTPW001B-40-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec.		RPD	Limit
				Result	Qualifier				Limits	RPD		
ortho-Phosphate	ND		2.00	1.80		mg/L		90	80 - 120	6	20	

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

## Method: 365.1 - Phosphorus, Ortho (Continued)

Lab Sample ID: 580-60006-1 DU  
Matrix: Water  
Analysis Batch: 218769

Client Sample ID: WCTPW001B-40-E1  
Prep Type: Dissolved

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
ortho-Phosphate	ND		ND		mg/L		NC	20

## Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 580-218833/2  
Matrix: Water  
Analysis Batch: 218833

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
							Limits
Alkalinity	100	98.5		mg/L		98	85 - 115

Lab Sample ID: 580-60006-1 DU  
Matrix: Water  
Analysis Batch: 218833

Client Sample ID: WCTPW001B-40-E1  
Prep Type: Dissolved

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Bicarbonate Alkalinity as CaCO3	91		101		mg/L		10	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Alkalinity	91		101		mg/L		10	17
Hydroxide Alkalinity as CaCO3	ND		ND		mg/L		NC	20

## Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-328779/34  
Matrix: Water  
Analysis Batch: 328779

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1

Lab Sample ID: MB 280-328779/63  
Matrix: Water  
Analysis Batch: 328779

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1

Lab Sample ID: LCS 280-328779/32  
Matrix: Water  
Analysis Batch: 328779

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
							Limits
Sulfide	0.444	0.429		mg/L		97	80 - 119

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

## Method: SM 4500 S2 D - Sulfide, Total (Continued)

Lab Sample ID: LCS 280-328779/61  
Matrix: Water  
Analysis Batch: 328779

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.444	0.430		mg/L		97	80 - 119

Lab Sample ID: LCSD 280-328779/33  
Matrix: Water  
Analysis Batch: 328779

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.444	0.412		mg/L		93	80 - 119	4	10

Lab Sample ID: LCSD 280-328779/62  
Matrix: Water  
Analysis Batch: 328779

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.444	0.412		mg/L		93	80 - 119	4	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-219300/1  
Matrix: Water  
Analysis Batch: 219300

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/09/16 13:28	1

Lab Sample ID: LCS 580-219300/2  
Matrix: Water  
Analysis Batch: 219300

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.69		mg/L		97	85 - 115

Lab Sample ID: 580-60006-1 MS  
Matrix: Water  
Analysis Batch: 219300

Client Sample ID: WCTPW001B-40-E1  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	24		200	220		mg/L		98	85 - 115

Lab Sample ID: 580-60006-1 MSD  
Matrix: Water  
Analysis Batch: 219300

Client Sample ID: WCTPW001B-40-E1  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	24		200	220		mg/L		98	85 - 115	0	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 580-60006-1 DU  
Matrix: Water  
Analysis Batch: 219300

Client Sample ID: WCTPW001B-40-E1  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Organic Carbon	24		20.7		mg/L		16	20

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

Lab Sample ID: MB 580-220354/1  
Matrix: Water  
Analysis Batch: 220354

Client Sample ID: Method Blank  
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/20/16 16:04	1

Lab Sample ID: LCS 580-220354/2  
Matrix: Water  
Analysis Batch: 220354

Client Sample ID: Lab Control Sample  
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.6		mg/L		106	85 - 115

Lab Sample ID: MB 580-220355/1  
Matrix: Water  
Analysis Batch: 220355

Client Sample ID: Method Blank  
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/20/16 16:12	1

Lab Sample ID: LCS 580-220355/2  
Matrix: Water  
Analysis Batch: 220355

Client Sample ID: Lab Control Sample  
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.8		mg/L		108	85 - 115

Lab Sample ID: 580-60006-10 MS  
Matrix: Water  
Analysis Batch: 220355

Client Sample ID: WCTPW003A-10-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	6.1	F1	10.0	17.1		mg/L		110	85 - 115

Lab Sample ID: 580-60006-10 MSD  
Matrix: Water  
Analysis Batch: 220355

Client Sample ID: WCTPW003A-10-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Dissolved Organic Carbon	6.1	F1	10.0	18.1	F1	mg/L		120	85 - 115	6	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

Lab Sample ID: 580-60006-10 DU

Matrix: Water

Analysis Batch: 220355

Client Sample ID: WCTPW003A-10-E1

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	6.1	F1	6.42		mg/L		5	20



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW001B-40-E1**

**Lab Sample ID: 580-60006-1**

**Date Collected: 06/02/16 08:56**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 13:02	HJM	TAL SEA
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6020A		5	220136	06/17/16 12:42	FCW	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 15:04	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 15:04	RSB	TAL SEA
Dissolved	Analysis	300.0		200	219105	06/07/16 18:29	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218769	06/03/16 14:29	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220354	06/20/16 16:04	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	219300	06/09/16 13:28	Z1T	TAL SEA

**Client Sample ID: WCTPW001B-10-E1**

**Lab Sample ID: 580-60006-2**

**Date Collected: 06/02/16 09:15**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 13:05	HJM	TAL SEA
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6020A		5	220136	06/17/16 12:46	FCW	TAL SEA
Total Recoverable	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Total Recoverable	Analysis	6020A		5	220136	06/17/16 12:51	FCW	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 15:18	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 15:18	RSB	TAL SEA
Dissolved	Analysis	300.0		200	219105	06/07/16 18:44	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218769	06/03/16 14:29	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220354	06/20/16 16:04	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219300	06/09/16 13:56	Z1T	TAL SEA

**Client Sample ID: WCTPW001A-40-E1**

**Lab Sample ID: 580-60006-3**

**Date Collected: 06/02/16 09:45**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6010C		10	220361	06/20/16 13:11	HJM	TAL SEA
Dissolved	Analysis	300.0		1	218886	06/03/16 15:33	RSB	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW001A-40-E1**

**Lab Sample ID: 580-60006-3**

**Date Collected: 06/02/16 09:45**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	219105	06/03/16 15:33	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/07/16 18:58	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218769	06/03/16 14:29	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		20	220354	06/20/16 16:04	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	219300	06/09/16 13:28	Z1T	TAL SEA

**Client Sample ID: WCTPW001A-10-E1**

**Lab Sample ID: 580-60006-4**

**Date Collected: 06/02/16 10:15**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 13:15	HJM	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 15:47	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 15:47	RSB	TAL SEA
Dissolved	Analysis	300.0		200	219105	06/07/16 19:13	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218769	06/03/16 14:29	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		2	220354	06/20/16 16:04	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	219300	06/09/16 13:28	Z1T	TAL SEA

**Client Sample ID: WCTPW002B-40-E1**

**Lab Sample ID: 580-60006-5**

**Date Collected: 06/02/16 10:45**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 13:28	HJM	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 16:02	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 16:02	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218769	06/03/16 14:29	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220354	06/20/16 16:04	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219300	06/09/16 13:56	Z1T	TAL SEA

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

**Client Sample ID: WCTPW002B-10-E1**

**Lab Sample ID: 580-60006-6**

**Date Collected: 06/02/16 11:20**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 13:31	HJM	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 16:16	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 16:16	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218769	06/03/16 14:29	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220354	06/20/16 16:04	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219300	06/09/16 13:56	Z1T	TAL SEA

**Client Sample ID: WCTPW002A-40-E1**

**Lab Sample ID: 580-60006-7**

**Date Collected: 06/02/16 11:45**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 13:34	HJM	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 16:30	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 16:30	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218769	06/03/16 14:29	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 15:45	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220354	06/20/16 16:04	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219300	06/09/16 13:56	Z1T	TAL SEA

**Client Sample ID: WCTPW002A-10-E1**

**Lab Sample ID: 580-60006-8**

**Date Collected: 06/02/16 12:30**

**Matrix: Water**

**Date Received: 06/02/16 15:48**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 13:38	HJM	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 16:45	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 16:45	RSB	TAL SEA
Dissolved	Analysis	300.0		200	219105	06/07/16 19:27	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218769	06/03/16 14:29	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 16:00	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220354	06/20/16 16:04	Z1T	TAL SEA

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

## Client Sample ID: WCTPW003B-10-E1

Lab Sample ID: 580-60006-9

Date Collected: 06/02/16 12:45

Matrix: Water

Date Received: 06/02/16 15:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6010C		10	220361	06/20/16 13:44	HJM	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 16:59	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 16:59	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218769	06/03/16 14:29	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 16:00	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220354	06/20/16 16:04	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219300	06/09/16 13:56	Z1T	TAL SEA

## Client Sample ID: WCTPW003A-10-E1

Lab Sample ID: 580-60006-10

Date Collected: 06/02/16 13:00

Matrix: Water

Date Received: 06/02/16 15:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220033	06/16/16 14:05	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 13:48	HJM	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 17:14	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 17:14	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218769	06/03/16 14:29	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 16:00	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220355	06/20/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219300	06/09/16 13:56	Z1T	TAL SEA

## Client Sample ID: WCTPW5MB-E1

Lab Sample ID: 580-60006-11

Date Collected: 06/02/16 14:30

Matrix: Water

Date Received: 06/02/16 15:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	218886	06/03/16 17:57	RSB	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 16:00	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220355	06/20/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219300	06/09/16 13:56	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60006-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-60006-1	WCTPW001B-40-E1	Water	06/02/16 08:56	06/02/16 15:48
580-60006-2	WCTPW001B-10-E1	Water	06/02/16 09:15	06/02/16 15:48
580-60006-3	WCTPW001A-40-E1	Water	06/02/16 09:45	06/02/16 15:48
580-60006-4	WCTPW001A-10-E1	Water	06/02/16 10:15	06/02/16 15:48
580-60006-5	WCTPW002B-40-E1	Water	06/02/16 10:45	06/02/16 15:48
580-60006-6	WCTPW002B-10-E1	Water	06/02/16 11:20	06/02/16 15:48
580-60006-7	WCTPW002A-40-E1	Water	06/02/16 11:45	06/02/16 15:48
580-60006-8	WCTPW002A-10-E1	Water	06/02/16 12:30	06/02/16 15:48
580-60006-9	WCTPW003B-10-E1	Water	06/02/16 12:45	06/02/16 15:48
580-60006-10	WCTPW003A-10-E1	Water	06/02/16 13:00	06/02/16 15:48
580-60006-11	WCTPW5MB-E1	Water	06/02/16 14:30	06/02/16 15:48



**gsi**  
55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

Chain of Custody Record

Test America

Field Sampler(s):

Client Contact

For Lab Use Only:

Laboratory

Lab PIN

Project Name: Parcel 15 - POI  
Project # or PO #: 603.002.010

SDG: \_\_\_\_\_  
Custody Seals Intact?

TestAmerica  
Analysis Requested

Brooks

Project Manager: Erin Hughes/Cindy Ryals  
Phone #971-200-8528 and 971-200-8531

Hand delivered?  
Cooler Temp: \_\_\_\_\_ °C

Brooks - Ben  
Mozniak - 206-753-6158

Report to email: schughes@gsi.com, cryals@gsi.com

Therm ID No: \_\_\_\_\_ Therm Exp: \_\_\_\_\_

Analysis Turnaround Time:

Standard 21 day TAT on Most Analyses

TestAmerica -  
Christabel  
Escarez -  
253.248.4975

Rush 5 day on Dissolved Metals (see notes)

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C-Comp, G-Grab)	Matrix	Total # of Cont.	Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	Sample Specific Notes	
WCT PU001B-40-EI	6/2	8:56	8921	G	PW	7	X	X	X	X	X	X	X	X							
WCT PU001B-10-EI		9:15	22151			8	X	X	X	X	X	X	X	X							
WCT PU001A-40-EI		9:45	2987			7	X	X	X	X	X	X	X	X							
WCT PU001A-10-EI		10:15	23241			7	X	X	X	X	X	X	X	X							
WCT PU002B-40-EI		10:45	17539			7	X	X	X	X	X	X	X	X							
WCT PU002B-10-EI		11:20	7185			7	X	X	X	X	X	X	X	X							
WCT PU002A-40-EI		11:45	23445			7	X	X	X	X	X	X	X	X							
WCT PU002A-10-EI		12:36	NM			5	X	X	X	X	X	X	X	X							
WCT PU003B-40-EI		12:45	1467			7	X	X	X	X	X	X	X	X							
WCT PU003A-10-EI		13:00	8421			7	X	X	X	X	X	X	X	X							
WCT PWSMB-EI		14:30	NM			7	X	X	X	X	X	X	X	X							

Possible Hazard Identification:  
Are samples hazardous? NO

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
Erin Hughes

Received by: B. Steel

Date/Time: 6-2-16 15:48

Relinquished by: Erin Hughes

Date/Time: 6/2/16 15:48

Received by:

Date/Time:

Relinquished by:

Date/Time:

Received in Laboratory by:

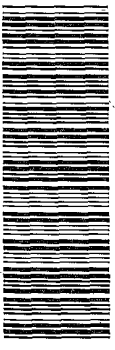
Date/Time:

Shipped Via: Thunderdog

Tracking #:

Special Instructions/QC Requirements

\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
\*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
Please contact Cindy Ryals at 971-200-8531 with any questions.



580-60006 Chain of Custody

TB Cooler IR<sup>2</sup> Cor 5.6 Unc 5.4  
Cooler Dsc 1g B/W @Lab  
Wet/Packs Packing Bubb  
Clido w/o

TBA<sup>A2</sup> Cooler Cor 6.2 Unc 6.2  
Cooler Dsc 1g B/W @Lab  
Wet/Packs Packing Bubb  
Clido w/o

TB Cooler IR<sup>2</sup> Cor 8.5 Unc 8.3  
Cooler Dsc 1g B/W @Lab  
Wet/Packs Packing Bubb  
Clido w/o

- 1
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- 3
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- 10
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**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Lab Pmt: Escatez, Christabel C	Carrier Tracking No(s):	COC No: 580-38877.1
Shipping/Receiving		E-Mail: christabel.escatez@testamericainc.com		Page: 1 of 1
Company: TestAmerica Laboratories, Inc.				Job #: 580-60006-1
Address: 4955 Yarrow Street				
City: ArVada				
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)				
Email:				
Project Name: Parcel 15 RI				
SSOW#: 58009703				
Due Date Requested: 8/18/2016				
TAT Requested (days):				
PO #:				
WO #:				
Sample Identification - Client ID (Lab ID)		Field Filtered Sample (Yes or No)	Performance/MSD (Yes or No)	SM4500, S2, D/FIELD, FLTRD Dissolved Sulfide, Field-Filtered
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, BT=tissue, A=air)	Preservation Code:
6/2/16	08:56 Pacific	Water	Water	W
6/2/16	09:15 Pacific	Water	Water	W
6/2/16	09:45 Pacific	Water	Water	W
6/2/16	10:15 Pacific	Water	Water	W
6/2/16	10:45 Pacific	Water	Water	W
6/2/16	11:20 Pacific	Water	Water	W
6/2/16	11:45 Pacific	Water	Water	W
6/2/16	12:30 Pacific	Water	Water	W
6/2/16	12:45 Pacific	Water	Water	W
6/2/16	13:00 Pacific	Water	Water	W
6/2/16	14:30 Pacific	Water	Water	W
<b>Possible Hazard Identification</b>				
Unconfirmed				
Deliverable Requested: I, II, III, IV, Other (specify)				
Empty Kit Relinquished by:				
Relinquished by: Tom Blantz				
Date/Time: 6/6/16				
Relinquished by:				
Date/Time:				
Relinquished by:				
Date/Time:				
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				
Custody Seal No.: 6-7-16				
Special Instructions/Note:				
Total Number of Containers: 1				
Special Instructions/Note:				
Preservation Codes:				
M - Hexane				
N - None				
O - AsNaO2				
P - Na2O4S				
Q - Na2SO3				
R - Na2SO3				
S - H2SO4				
T - TSP Dodecahydrate				
U - Acetone				
V - MCAA				
W - ph 4.5				
L - EDA				
Other:				
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Special Instructions/QC Requirements:				
Method of Shipment:				
Received by: Neal Pata				
Date/Time: 6-7-16 09:25				
Company: TAD				
Received by:				
Date/Time:				
Received by:				
Date/Time:				
Cooling Temperature(s): °C and Other Remarks: 0-6 ICHS 40.0 Transferred by RP 6-7-16				



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-60006-1

**Login Number: 60006**

**List Number: 1**

**Creator: Gamble, Cathy L**

**List Source: TestAmerica Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-60006-1

**Login Number: 60006**

**List Number: 2**

**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**

**List Creation: 06/07/16 01:03 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-60030-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Rod Struck



Authorized for release by:  
6/23/2016 4:31:56 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

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**Job ID: 580-60030-1**

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**Laboratory: TestAmerica Seattle**

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**Narrative**

**Job Narrative**  
**580-60030-1**

**Receipt**

The samples were received on 6/3/2016 2:45 PM; the samples arrived in good condition on ice. The temperatures of the 2 coolers at receipt time were 7.2° C and 12.0° C. The temperatures are considered acceptable as the samples were received on the same day of collection and there is evidence the chilling process has begun.

**Receipt Exceptions**

The chain of custody requests 8270 analysis on the following samples but proper volume (unpreserved 250mL ambers) was not received. WCTPW003B-40-E1 (580-60030-1) and WCTPW003A-40-E1 (580-60030-2). The samples were not logged in for semivolatile analysis.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

**Client Sample ID: WCTPW003B-40-E1**

**Lab Sample ID: 580-60030-1**

Date Collected: 06/03/16 09:00

Matrix: Water

Date Received: 06/03/16 14:45

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	51		22	0.46	mg/L		06/17/16 10:17	06/20/16 14:52	20
Magnesium	87		22	2.7	mg/L		06/17/16 10:17	06/20/16 14:52	20
Potassium	37		3.3	0.15	mg/L		06/17/16 10:17	06/20/16 17:05	1
Sodium	650		40	11	mg/L		06/17/16 10:17	06/20/16 14:52	20

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.55	HF			SU			06/06/16 12:28	1
<b>Total Organic Carbon</b>	<b>16</b>		5.0	0.95	mg/L			06/10/16 10:40	5
<b>Total Suspended Solids</b>	<b>3800</b>		50	50	mg/L			06/04/16 15:40	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 18:55	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 18:55	100
Chloride	2200		90	4.0	mg/L			06/03/16 18:55	100
Nitrate as N	ND		20	2.0	mg/L			06/03/16 18:55	100
Bromide	ND		50	6.0	mg/L			06/03/16 18:55	100
Sulfate	230		120	26	mg/L			06/03/16 18:55	100
Sulfide	0.097		0.050	0.0070	mg/L			06/07/16 16:00	1
Dissolved Organic Carbon	12		1.0	0.19	mg/L			06/20/16 16:12	1
<b>ortho-Phosphate</b>	<b>0.21</b>		0.10	0.10	mg/L			06/04/16 11:22	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>310</b>		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

**Client Sample ID: WCTPW003A-40-E1**

**Lab Sample ID: 580-60030-2**

Date Collected: 06/03/16 09:30

Matrix: Water

Date Received: 06/03/16 14:45

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	210		22	0.46	mg/L		06/17/16 10:17	06/20/16 14:56	20
Magnesium	500		22	2.7	mg/L		06/17/16 10:17	06/20/16 14:56	20
Potassium	160		66	2.9	mg/L		06/17/16 10:17	06/20/16 14:56	20
Sodium	3800		40	11	mg/L		06/17/16 10:17	06/20/16 14:56	20

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.48	HF			SU			06/06/16 12:35	1
Total Organic Carbon	9.3		5.0	0.95	mg/L			06/10/16 10:40	5
Total Suspended Solids	3400		33	33	mg/L			06/04/16 15:40	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 19:09	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 19:09	100
Chloride	4300		90	4.0	mg/L			06/03/16 19:09	100
Nitrate as N	ND		20	2.0	mg/L			06/03/16 19:09	100
Bromide	ND		50	6.0	mg/L			06/03/16 19:09	100
Sulfate	540		120	26	mg/L			06/03/16 19:09	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 16:00	1
Dissolved Organic Carbon	2.2		1.0	0.19	mg/L			06/20/16 16:12	1
ortho-Phosphate	0.15		0.10	0.10	mg/L			06/04/16 11:22	1
Bicarbonate Alkalinity as CaCO3	260		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

**Client Sample ID: WCTPW004B-40-E1**

**Lab Sample ID: 580-60030-3**

**Date Collected: 06/03/16 10:30**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.080		0.025	0.017	ug/L		06/04/16 14:05	06/08/16 17:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	84		44 - 125				06/04/16 14:05	06/08/16 17:30	1

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	71		22	0.46	mg/L		06/17/16 10:17	06/20/16 14:59	20
Magnesium	68		22	2.7	mg/L		06/17/16 10:17	06/20/16 14:59	20
Potassium	21		3.3	0.15	mg/L		06/17/16 10:17	06/20/16 17:08	1
Sodium	540		40	11	mg/L		06/17/16 10:17	06/20/16 14:59	20

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.79	HF			SU			06/06/16 12:39	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	15		5.0	0.95	mg/L			06/10/16 10:40	5
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	2500		33	33	mg/L			06/04/16 15:40	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		2.0	0.30	mg/L			06/03/16 19:24	10
Nitrite as N	ND		4.0	0.80	mg/L			06/03/16 19:24	10
Chloride	860		9.0	0.40	mg/L			06/03/16 19:24	10
Nitrate as N	ND		2.0	0.20	mg/L			06/03/16 19:24	10
Bromide	ND		5.0	0.60	mg/L			06/03/16 19:24	10
Sulfate	72		12	2.6	mg/L			06/03/16 19:24	10
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 16:00	1
Dissolved Organic Carbon	9.7		1.0	0.19	mg/L			06/20/16 16:12	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.32		0.10	0.10	mg/L			06/04/16 11:22	1
Bicarbonate Alkalinity as CaCO3	130		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

**Client Sample ID: WCTPW004A-40-E1**

**Lab Sample ID: 580-60030-4**

**Date Collected: 06/03/16 11:20**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.071		0.024	0.016	ug/L		06/04/16 14:05	06/08/16 17:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	85		44 - 125				06/04/16 14:05	06/08/16 17:53	1

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	16		1.1	0.023	mg/L		06/17/16 10:17	06/20/16 17:11	1
Magnesium	32		22	2.7	mg/L		06/17/16 10:17	06/20/16 15:02	20
Potassium	13		3.3	0.15	mg/L		06/17/16 10:17	06/20/16 17:11	1
Sodium	200		40	11	mg/L		06/17/16 10:17	06/20/16 15:02	20

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.62	HF			SU			06/06/16 12:42	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	17		5.0	0.95	mg/L			06/10/16 10:40	5
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	440		20	20	mg/L			06/04/16 15:40	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.37		0.20	0.030	mg/L			06/03/16 19:38	1
Nitrite as N	ND		0.40	0.080	mg/L			06/03/16 19:38	1
Chloride	400		90	4.0	mg/L			06/07/16 19:42	100
Nitrate as N	0.42		0.20	0.020	mg/L			06/03/16 19:38	1
Bromide	ND		0.50	0.060	mg/L			06/03/16 19:38	1
Sulfate	32		1.2	0.26	mg/L			06/03/16 19:38	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 16:00	1
Dissolved Organic Carbon	11		1.0	0.19	mg/L			06/20/16 16:12	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.22		0.10	0.10	mg/L			06/04/16 11:22	1
Bicarbonate Alkalinity as CaCO3	76		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

**Client Sample ID: WCTPW004B-10-E1**

**Lab Sample ID: 580-60030-5**

**Date Collected: 06/03/16 11:50**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.12		0.023	0.016	ug/L		06/04/16 14:05	06/08/16 18:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	86		44 - 125				06/04/16 14:05	06/08/16 18:15	1

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110		22	0.46	mg/L		06/17/16 10:17	06/20/16 15:06	20
Magnesium	270		22	2.7	mg/L		06/17/16 10:17	06/20/16 15:06	20
Potassium	85		66	2.9	mg/L		06/17/16 10:17	06/20/16 15:06	20
Sodium	2100		40	11	mg/L		06/17/16 10:17	06/20/16 15:06	20

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.06	HF			SU			06/06/16 12:47	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	9.9		1.0	0.19	mg/L			06/10/16 10:38	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	190		10	10	mg/L			06/04/16 15:40	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 19:53	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 19:53	100
Chloride	3000		90	4.0	mg/L			06/03/16 19:53	100
Nitrate as N	ND		20	2.0	mg/L			06/03/16 19:53	100
Bromide	ND		50	6.0	mg/L			06/03/16 19:53	100
Sulfate	390		120	26	mg/L			06/03/16 19:53	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 16:00	1
Dissolved Organic Carbon	13		1.0	0.19	mg/L			06/20/16 16:12	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.23		0.10	0.10	mg/L			06/04/16 11:22	1
Bicarbonate Alkalinity as CaCO3	140		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

**Client Sample ID: WCTPW004A-10-E1**

**Lab Sample ID: 580-60030-6**

**Date Collected: 06/03/16 12:30**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.073		0.021	0.015	ug/L		06/04/16 14:05	06/08/16 18:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	88		44 - 125				06/04/16 14:05	06/08/16 18:38	1

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	220		22	0.46	mg/L		06/17/16 10:17	06/20/16 15:09	20
Magnesium	360		22	2.7	mg/L		06/17/16 10:17	06/20/16 15:09	20
Potassium	65	J	66	2.9	mg/L		06/17/16 10:17	06/20/16 15:09	20
Sodium	2400		40	11	mg/L		06/17/16 10:17	06/20/16 15:09	20

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.49	HF			SU			06/06/16 12:50	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	18		1.0	0.19	mg/L			06/10/16 10:38	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	230		10	10	mg/L			06/04/16 18:31	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			06/03/16 20:07	100
Nitrite as N	ND		40	8.0	mg/L			06/03/16 20:07	100
Chloride	6400		90	4.0	mg/L			06/03/16 20:07	100
Nitrate as N	ND		20	2.0	mg/L			06/03/16 20:07	100
Bromide	ND		50	6.0	mg/L			06/03/16 20:07	100
Sulfate	870		120	26	mg/L			06/03/16 20:07	100
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 16:00	1
Dissolved Organic Carbon	14		1.0	0.19	mg/L			06/20/16 16:12	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.60		0.10	0.10	mg/L			06/04/16 11:22	1
Bicarbonate Alkalinity as CaCO3	120		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

**Client Sample ID: WCTSW004B-E1**

**Lab Sample ID: 580-60030-7**

**Date Collected: 06/03/16 12:20**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.021	0.014	ug/L		06/04/16 14:05	06/08/16 19:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	86		44 - 125				06/04/16 14:05	06/08/16 19:00	1

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	19		1.1	0.023	mg/L		06/17/16 10:17	06/20/16 17:15	1
Magnesium	16		1.1	0.13	mg/L		06/17/16 10:17	06/21/16 12:08	1
Potassium	4.6		3.3	0.15	mg/L		06/17/16 10:17	06/20/16 17:15	1
Sodium	64		40	11	mg/L		06/17/16 10:17	06/20/16 15:12	20

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.41	HF			SU			06/06/16 12:56	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	3.0		1.0	0.19	mg/L			06/10/16 10:38	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.090	J	0.20	0.030	mg/L			06/03/16 20:50	1
Nitrite as N	ND		0.40	0.080	mg/L			06/03/16 20:50	1
Chloride	120		9.0	0.40	mg/L			06/07/16 19:56	10
Nitrate as N	2.1		0.20	0.020	mg/L			06/03/16 20:50	1
Bromide	ND		0.50	0.060	mg/L			06/03/16 20:50	1
Sulfate	23		1.2	0.26	mg/L			06/03/16 20:50	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 16:00	1
Dissolved Organic Carbon	2.5		1.0	0.19	mg/L			06/20/16 16:12	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.10		0.10	0.10	mg/L			06/04/16 11:22	1
Bicarbonate Alkalinity as CaCO3	96		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

**Client Sample ID: WCTSW504B-E1**

**Lab Sample ID: 580-60030-8**

**Date Collected: 06/03/16 12:20**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.072		0.023	0.015	ug/L		06/04/16 14:05	06/08/16 19:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	83		44 - 125				06/04/16 14:05	06/08/16 19:23	1

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	19		1.1	0.023	mg/L		06/17/16 10:17	06/20/16 17:18	1
Magnesium	17		1.1	0.13	mg/L		06/17/16 10:17	06/21/16 12:12	1
Potassium	4.8		3.3	0.15	mg/L		06/17/16 10:17	06/20/16 17:18	1
Sodium	65		40	11	mg/L		06/17/16 10:17	06/20/16 15:16	20

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.39	HF			SU			06/06/16 12:58	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	2.5		1.0	0.19	mg/L			06/10/16 10:38	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.090	J	0.20	0.030	mg/L			06/03/16 21:05	1
Nitrite as N	ND		0.40	0.080	mg/L			06/03/16 21:05	1
Chloride	120		9.0	0.40	mg/L			06/07/16 20:10	10
Nitrate as N	2.0		0.20	0.020	mg/L			06/03/16 21:05	1
Bromide	ND		0.50	0.060	mg/L			06/03/16 21:05	1
Sulfate	23		1.2	0.26	mg/L			06/03/16 21:05	1
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 16:00	1
Dissolved Organic Carbon	2.3		1.0	0.19	mg/L			06/20/16 16:12	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/04/16 11:22	1
Bicarbonate Alkalinity as CaCO3	100		5.0	5.0	mg/L			06/04/16 17:07	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/04/16 17:07	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-218824/1-A**  
**Matrix: Water**  
**Analysis Batch: 219171**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 218824**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.020	0.014	ug/L		06/04/16 14:05	06/08/16 12:57	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	68		44 - 125				06/04/16 14:05	06/08/16 12:57	1

**Lab Sample ID: LCS 580-218824/2-A**  
**Matrix: Water**  
**Analysis Batch: 219171**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 218824**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	8.00	5.89		ug/L		74	30 - 149
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4,6-Tribromophenol	79		44 - 125				

**Lab Sample ID: LCSD 580-218824/3-A**  
**Matrix: Water**  
**Analysis Batch: 219171**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 218824**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	8.00	6.16		ug/L		77	30 - 149	4	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	79		44 - 125						

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-220092/18-A**  
**Matrix: Water**  
**Analysis Batch: 220361**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 220092**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		06/17/16 10:17	06/20/16 14:11	1
Magnesium	ND		1.1	0.13	mg/L		06/17/16 10:17	06/20/16 14:11	1
Potassium	ND		3.3	0.15	mg/L		06/17/16 10:17	06/20/16 14:11	1
Sodium	ND		2.0	0.55	mg/L		06/17/16 10:17	06/20/16 14:11	1

**Lab Sample ID: LCS 580-220092/19-A**  
**Matrix: Water**  
**Analysis Batch: 220361**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 220092**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	19.3		mg/L		97	80 - 120
Magnesium	20.0	18.8		mg/L		94	80 - 120
Potassium	20.0	19.2		mg/L		96	80 - 120
Sodium	20.0	18.8		mg/L		94	80 - 120

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

## Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 580-220092/20-A

Matrix: Water

Analysis Batch: 220361

Client Sample ID: Lab Control Sample Dup

Prep Type: Total Recoverable

Prep Batch: 220092

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Calcium	20.0	19.9		mg/L		99	80 - 120	3	20	
Magnesium	20.0	19.3		mg/L		96	80 - 120	2	20	
Potassium	20.0	19.8		mg/L		99	80 - 120	3	20	
Sodium	20.0	18.8		mg/L		94	80 - 120	0	20	

Lab Sample ID: LCSSRM 580-220092/21-A

Matrix: Water

Analysis Batch: 220361

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 220092

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Calcium	20.0	19.2		mg/L		96	80 - 120			
Magnesium	20.0	18.4		mg/L		92	80 - 120			
Potassium	20.0	19.1		mg/L		95	80 - 120			
Sodium	20.0	18.2		mg/L		91	80 - 120			

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-218886/3

Matrix: Water

Analysis Batch: 218886

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrite as N	ND		0.40	0.080	mg/L			06/03/16 13:51	1
Nitrate as N	ND		0.20	0.020	mg/L			06/03/16 13:51	1

Lab Sample ID: LCS 580-218886/4

Matrix: Water

Analysis Batch: 218886

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Nitrite as N	5.00	4.98		mg/L		100	90 - 110			
Nitrate as N	5.00	4.96		mg/L		99	90 - 110			

Lab Sample ID: LCSD 580-218886/5

Matrix: Water

Analysis Batch: 218886

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Nitrite as N	5.00	5.06		mg/L		101	90 - 110	2	15	
Nitrate as N	5.00	4.94		mg/L		99	90 - 110	0	15	

Lab Sample ID: MB 580-219105/3

Matrix: Water

Analysis Batch: 219105

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Fluoride	ND		0.20	0.030	mg/L			06/03/16 13:51	1
Chloride	ND		0.90	0.040	mg/L			06/03/16 13:51	1
Bromide	ND		0.50	0.060	mg/L			06/03/16 13:51	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 580-219105/3  
Matrix: Water  
Analysis Batch: 219105

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.2	0.26	mg/L			06/03/16 13:51	1

Lab Sample ID: LCS 580-219105/4  
Matrix: Water  
Analysis Batch: 219105

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	4.98		mg/L		100	90 - 110
Chloride	50.0	50.2		mg/L		100	90 - 110
Bromide	5.00	5.07		mg/L		101	90 - 110
Sulfate	50.0	49.6		mg/L		99	90 - 110

Lab Sample ID: LCSD 580-219105/5  
Matrix: Water  
Analysis Batch: 219105

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	4.98		mg/L		100	90 - 110	0	15
Chloride	50.0	50.2		mg/L		100	90 - 110	0	15
Bromide	5.00	5.06		mg/L		101	90 - 110	0	15
Sulfate	50.0	49.5		mg/L		99	90 - 110	0	15

## Method: 365.1 - Phosphorus, Ortho

Lab Sample ID: MB 580-218816/1  
Matrix: Water  
Analysis Batch: 218816

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			06/04/16 11:22	1

Lab Sample ID: LCS 580-218816/2  
Matrix: Water  
Analysis Batch: 218816

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.88		mg/L		94	90 - 110

Lab Sample ID: 580-60030-1 MS  
Matrix: Water  
Analysis Batch: 218816

Client Sample ID: WCTPW003B-40-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	0.21		2.00	2.00		mg/L		90	80 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

## Method: 365.1 - Phosphorus, Ortho (Continued)

**Lab Sample ID: 580-60030-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 218816**

**Client Sample ID: WCTPW003B-40-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	0.21		2.00	2.15		mg/L		97	80 - 120	7	20

**Lab Sample ID: 580-60030-1 DU**  
**Matrix: Water**  
**Analysis Batch: 218816**

**Client Sample ID: WCTPW003B-40-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
ortho-Phosphate	0.21		0.206		mg/L		2	20

## Method: 9040B - pH

**Lab Sample ID: 580-60030-1 DU**  
**Matrix: Water**  
**Analysis Batch: 218915**

**Client Sample ID: WCTPW003B-40-E1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.55	HF	6.550		SU		0	1

## Method: SM 2320B - Alkalinity

**Lab Sample ID: 580-60030-1 DU**  
**Matrix: Water**  
**Analysis Batch: 218833**

**Client Sample ID: WCTPW003B-40-E1**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	310		307		mg/L		0.9	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 580-218827/1**  
**Matrix: Water**  
**Analysis Batch: 218827**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			06/04/16 15:40	1

**Lab Sample ID: LCS 580-218827/2**  
**Matrix: Water**  
**Analysis Batch: 218827**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	30.0	28.8		mg/L		96	70.6 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

## Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

**Lab Sample ID: 580-60030-5 DU**  
**Matrix: Water**  
**Analysis Batch: 218827**

**Client Sample ID: WCTPW004B-10-E1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	190		202		mg/L		6	20

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID: MB 280-328779/63**  
**Matrix: Water**  
**Analysis Batch: 328779**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 15:45	1

**Lab Sample ID: MB 280-328779/94**  
**Matrix: Water**  
**Analysis Batch: 328779**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			06/07/16 16:00	1

**Lab Sample ID: LCS 280-328779/61**  
**Matrix: Water**  
**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	0.444	0.430		mg/L		97	80 - 119

**Lab Sample ID: LCS 280-328779/92**  
**Matrix: Water**  
**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	0.444	0.429		mg/L		97	80 - 119

**Lab Sample ID: LCSD 280-328779/62**  
**Matrix: Water**  
**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfide	0.444	0.412		mg/L		93	80 - 119	4	10

**Lab Sample ID: LCSD 280-328779/93**  
**Matrix: Water**  
**Analysis Batch: 328779**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfide	0.444	0.411		mg/L		93	80 - 119	4	10

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

## Method: SM 4500 S2 D - Sulfide, Total (Continued)

Lab Sample ID: 580-60030-7 MS  
Matrix: Water  
Analysis Batch: 328779

Client Sample ID: WCTSW004B-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND		0.422	0.413		mg/L		98	80 - 119

Lab Sample ID: 580-60030-7 MSD  
Matrix: Water  
Analysis Batch: 328779

Client Sample ID: WCTSW004B-E1  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND		0.422	0.416		mg/L		99	80 - 119	1	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-219388/1  
Matrix: Water  
Analysis Batch: 219388

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/10/16 10:38	1

Lab Sample ID: LCS 580-219388/2  
Matrix: Water  
Analysis Batch: 219388

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.89		mg/L		99	85 - 115

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

Lab Sample ID: MB 580-220355/1  
Matrix: Water  
Analysis Batch: 220355

Client Sample ID: Method Blank  
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			06/20/16 16:12	1

Lab Sample ID: LCS 580-220355/2  
Matrix: Water  
Analysis Batch: 220355

Client Sample ID: Lab Control Sample  
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.8		mg/L		108	85 - 115

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

**Client Sample ID: WCTPW003B-40-E1**

**Lab Sample ID: 580-60030-1**

**Date Collected: 06/03/16 09:00**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 14:52	HJM	TAL SEA
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		1	220395	06/20/16 17:05	HJM	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 18:55	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 18:55	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218816	06/04/16 11:22	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218915	06/06/16 12:28	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	218827	06/04/16 15:40	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 16:00	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220355	06/20/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		5	219388	06/10/16 10:40	Z1T	TAL SEA

**Client Sample ID: WCTPW003A-40-E1**

**Lab Sample ID: 580-60030-2**

**Date Collected: 06/03/16 09:30**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 14:56	HJM	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 19:09	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 19:09	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218816	06/04/16 11:22	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218915	06/06/16 12:35	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	218827	06/04/16 15:40	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 16:00	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220355	06/20/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		5	219388	06/10/16 10:40	Z1T	TAL SEA

**Client Sample ID: WCTPW004B-40-E1**

**Lab Sample ID: 580-60030-3**

**Date Collected: 06/03/16 10:30**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218824	06/04/16 14:05	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		1	219171	06/08/16 17:30	D1R	TAL SEA
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 14:59	HJM	TAL SEA
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

**Client Sample ID: WCTPW004B-40-E1**

**Lab Sample ID: 580-60030-3**

Date Collected: 06/03/16 10:30

Matrix: Water

Date Received: 06/03/16 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6010C		1	220395	06/20/16 17:08	HJM	TAL SEA
Dissolved	Analysis	300.0		10	218886	06/03/16 19:24	RSB	TAL SEA
Dissolved	Analysis	300.0		10	219105	06/03/16 19:24	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218816	06/04/16 11:22	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218915	06/06/16 12:39	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	218827	06/04/16 15:40	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 16:00	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220355	06/20/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		5	219388	06/10/16 10:40	Z1T	TAL SEA

**Client Sample ID: WCTPW004A-40-E1**

**Lab Sample ID: 580-60030-4**

Date Collected: 06/03/16 11:20

Matrix: Water

Date Received: 06/03/16 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218824	06/04/16 14:05	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		1	219171	06/08/16 17:53	D1R	TAL SEA
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 15:02	HJM	TAL SEA
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		1	220395	06/20/16 17:11	HJM	TAL SEA
Dissolved	Analysis	300.0		1	218886	06/03/16 19:38	RSB	TAL SEA
Dissolved	Analysis	300.0		1	219105	06/03/16 19:38	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/07/16 19:42	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218816	06/04/16 11:22	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218915	06/06/16 12:42	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	218827	06/04/16 15:40	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 16:00	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220355	06/20/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		5	219388	06/10/16 10:40	Z1T	TAL SEA

**Client Sample ID: WCTPW004B-10-E1**

**Lab Sample ID: 580-60030-5**

Date Collected: 06/03/16 11:50

Matrix: Water

Date Received: 06/03/16 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218824	06/04/16 14:05	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		1	219171	06/08/16 18:15	D1R	TAL SEA
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

**Client Sample ID: WCTPW004B-10-E1**

**Lab Sample ID: 580-60030-5**

**Date Collected: 06/03/16 11:50**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6010C		20	220361	06/20/16 15:06	HJM	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 19:53	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 19:53	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218816	06/04/16 11:22	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218915	06/06/16 12:47	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	218827	06/04/16 15:40	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 16:00	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220355	06/20/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219388	06/10/16 10:38	Z1T	TAL SEA

**Client Sample ID: WCTPW004A-10-E1**

**Lab Sample ID: 580-60030-6**

**Date Collected: 06/03/16 12:30**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218824	06/04/16 14:05	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		1	219171	06/08/16 18:38	D1R	TAL SEA
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 15:09	HJM	TAL SEA
Dissolved	Analysis	300.0		100	218886	06/03/16 20:07	RSB	TAL SEA
Dissolved	Analysis	300.0		100	219105	06/03/16 20:07	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218816	06/04/16 11:22	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218915	06/06/16 12:50	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	218827	06/04/16 18:31	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 16:00	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220355	06/20/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219388	06/10/16 10:38	Z1T	TAL SEA

**Client Sample ID: WCTSW004B-E1**

**Lab Sample ID: 580-60030-7**

**Date Collected: 06/03/16 12:20**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218824	06/04/16 14:05	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		1	219171	06/08/16 19:00	D1R	TAL SEA
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 15:12	HJM	TAL SEA
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		1	220395	06/20/16 17:15	HJM	TAL SEA

TestAmerica Seattle



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

**Client Sample ID: WCTSW004B-E1**

**Lab Sample ID: 580-60030-7**

**Date Collected: 06/03/16 12:20**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		1	220463	06/21/16 12:08	HJM	TAL SEA
Dissolved	Analysis	300.0		1	218886	06/03/16 20:50	RSB	TAL SEA
Dissolved	Analysis	300.0		1	219105	06/03/16 20:50	RSB	TAL SEA
Dissolved	Analysis	300.0		10	219105	06/07/16 19:56	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218816	06/04/16 11:22	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218915	06/06/16 12:56	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 16:00	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220355	06/20/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219388	06/10/16 10:38	Z1T	TAL SEA

**Client Sample ID: WCTSW504B-E1**

**Lab Sample ID: 580-60030-8**

**Date Collected: 06/03/16 12:20**

**Matrix: Water**

**Date Received: 06/03/16 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			218824	06/04/16 14:05	HLC	TAL SEA
Total/NA	Analysis	8270D SIM		1	219171	06/08/16 19:23	D1R	TAL SEA
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		20	220361	06/20/16 15:16	HJM	TAL SEA
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		1	220395	06/20/16 17:18	HJM	TAL SEA
Dissolved	Prep	3005A			220092	06/17/16 10:17	MKN	TAL SEA
Dissolved	Analysis	6010C		1	220463	06/21/16 12:12	HJM	TAL SEA
Dissolved	Analysis	300.0		1	218886	06/03/16 21:05	RSB	TAL SEA
Dissolved	Analysis	300.0		1	219105	06/03/16 21:05	RSB	TAL SEA
Dissolved	Analysis	300.0		10	219105	06/07/16 20:10	RSB	TAL SEA
Dissolved	Analysis	365.1		1	218816	06/04/16 11:22	EMM	TAL SEA
Total/NA	Analysis	9040B		1	218915	06/06/16 12:58	L1I	TAL SEA
Dissolved	Analysis	SM 2320B		1	218833	06/04/16 17:07	EMM	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	328779	06/07/16 16:00	WTW	TAL DEN
Dissolved	Analysis	SM 5310B		1	220355	06/20/16 16:12	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	219388	06/10/16 10:38	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
9040B		Water	pH
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2540D		Water	Total Suspended Solids
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-60030-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-60030-1	WCTPW003B-40-E1	Water	06/03/16 09:00	06/03/16 14:45
580-60030-2	WCTPW003A-40-E1	Water	06/03/16 09:30	06/03/16 14:45
580-60030-3	WCTPW004B-40-E1	Water	06/03/16 10:30	06/03/16 14:45
580-60030-4	WCTPW004A-40-E1	Water	06/03/16 11:20	06/03/16 14:45
580-60030-5	WCTPW004B-10-E1	Water	06/03/16 11:50	06/03/16 14:45
580-60030-6	WCTPW004A-10-E1	Water	06/03/16 12:30	06/03/16 14:45
580-60030-7	WCTSW004B-E1	Water	06/03/16 12:20	06/03/16 14:45
580-60030-8	WCTSW504B-E1	Water	06/03/16 12:20	06/03/16 14:45



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

Field Sampler(s):  
**ECH PP SK**

Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>										<b>Lab PM</b>			
Project Name: Parcel 15 - POT	SDG: _____	TestAmerica					Brooks					Brooks - Ben Wozniak - 206-753-6158			
Project # or PO #: 603.002.010	Custody Seals intact?	<b>Analysis Requested</b>													
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	<del>Arsenic (total)</del> <b>TSS</b>	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	TestAmerica - Christabel Escarez - 253.248.4975
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C														
Report to email: echughes@gslws.com, cryals@gslws.com	Therm ID No.: _____ Therm Exp. _____														
<b>Analysis Turnaround Time:</b>															
Standard 21 day TAT on Most Analyses															
Rush 5 day on Dissolved Metals (see notes)															

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Total Organic Carbon	Dissolved Organic Carbon (field filtered)	Sulfide (dissolved; field filtered)	Major Cations (dissolved; field filtered)*	Major Anions, Alkalinity, Nitrate/Nitrate (dissolved; field filtered)**	Orthophosphate (dissolved; field filtered)	<del>Arsenic (total)</del> <b>TSS</b>	Arsenic, Iron, and Manganese (dissolved; field filtered)	Pentachlorophenol and pH	Arsenic (total)	Arsenic, Iron, and Manganese (dissolved; field filtered)***	Iron Speciation - Fe(II)/Fe(III) (dissolved; field filtered)	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)***	Sample Specific Notes
-1 WCTPW003B-40-EI	6/3	900	5803	G	PW	8	X	X	X	X	X	X	X	X	X	X	X	X	X	ECH
WCTPW003A-40-EI	6/3	930	29184	G	PW	8	X	X	X	X	X	X	X	X	X	X	X	X	X	
-3 WCTPW004B-40-EI	6/3	1030	4039	G	PW	8	X	X	X	X	X	X	X	X	X	X	X	X	X	
WCTPW004A-40-EI	6/3	1120	520	G	PW	8	X	X	X	X	X	X	X	X	X	X	X	X	X	
-5 WCTPW004B-10-EI	6/3	1150	12904	G	PW	8	X	X	X	X	X	X	X	X	X	X	X	X	X	
WCTPW004A-10-EI	6/3	1230	NM	G	PW	8	X	X	X	X	X	X	X	X	X	X	X	X	X	
-7 WCTSW004B-EI	6/3	1220	559	G	SW	12	X	X	X	X	X	X	X	X	X	X	X	X	X	
WCTSW004B-EI	6/3	1220	559	G	SW	12	X	X	X	X	X	X	X	X	X	X	X	X	X	

**Possible Hazard Identification:**  
 Are samples hazardous?  
 If yes, select hazard(s):

Received by: *B. Stall* Date/Time: 6-3-16 1445 SEATA  
 Relinquished by: *Erin Hughes* Date/Time: 6/3/16 2:45

Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Shipped Via: \_\_\_\_\_ Tracking #: \_\_\_\_\_

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 \*\*\* Arsenic analysis to be rushed. Arsenic speciation to be performed on samples with arsenic concentrations greater than (>) 36 ug/L.  
 Brooks to follow special anoxic sample handling procedures as outlined in Attachment 2 of the Project SAP.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



580-60030 Chain of Custody

TB Cooler <sup>R#2</sup> Cor 1.2 Unc 7.0  
Cooler Dsc lg hllllllh @Lab  
WetPacks Packing bubble  
W/ clint do.

- Cooler FW 003

TB Cooler <sup>R#2</sup> Cor 12.0 Unc 11.8  
Cooler Dsc lg hllllllh @Lab  
WetPacks Packing bubble  
W/ clint do.

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler: Escarec, Christabel C		Carrier Tracking No(s):		COC No: 580-38877-1	
Client Contact: Shipping/Receiving		E-Mail: christabel.escarec@testamericainc.com		Page: 1 of 1		Job #: 580-60030-1	
Company: TestAmerica Laboratories, Inc.		Due Date Requested: 6/19/2016		Analysis Requested		Preservation Codes:	
Address: 4955 Yarrow Street		TAT Requested (days):		SM4600_S2_D\FIELD_FLTRD Dissolved Sulfide, field-filtered		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
City: Anvada		PO #:		Field Filtered Sample (Yes or No)		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)	
State, Zip: CO, 80002		WO #:		Perform MS/MSL (Yes or No)		Total Number of Containers	
Phone: 303-736-0100(Tel) 303-431-7171(Fax)		Project #: 58009703		X		X	
Email:		SSOW#:		X		X	
Project Name: Parcel 15 RI		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)	
Site:		6/3/16		09:00 Pacific		Water	
<b>Sample Identification - Client ID (Lab ID)</b>		Preservation Code		Matrix (W=water, S=solid, O=waste/oi, BT=Tissue, A=Air)		Special Instructions/Note:	
WCTPW003B-40-E1 (580-60030-1)		6/3/16		09:30 Pacific		Water	
WCTPW003A-40-E1 (580-60030-2)		6/3/16		10:30 Pacific		Water	
WCTPW004B-40-E1 (580-60030-3)		6/3/16		11:20 Pacific		Water	
WCTPW004A-40-E1 (580-60030-4)		6/3/16		11:50 Pacific		Water	
WCTPW004B-10-E1 (580-60030-5)		6/3/16		12:30 Pacific		Water	
WCTPW004A-10-E1 (580-60030-6)		6/3/16		12:20 Pacific		Water	
WCTSW004B-E1 (580-60030-7)		6/3/16		12:20 Pacific		Water	
WCTSW504B-E1 (580-60030-8)		6/3/16		12:20 Pacific		Water	
<b>Possible Hazard Identification</b>							
Unconfirmed							
Deliverable Requested: I, II, III, IV, Other (specify)							
Special Instructions/QC Requirements:							
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: Tom Blantz		6/16/16		6:16/16		FedEx	
Relinquished by:		Date/Time:		Date/Time:		Company: THD	
Relinquished by:		Date/Time:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Date/Time:		Company:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 0-0, 22-25 40-0 Transferred by RJ 6-7-16			



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-60030-1

**Login Number: 60030**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Blankinship, Tom X**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-60030-1

**Login Number: 60030**

**List Number: 2**

**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**

**List Creation: 06/07/16 12:59 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# **Appendix C.2: Event 2 - Laboratory Reports and Chain of Custody Forms**



18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • info@brooksapplied.com

September 21, 2016

GSI Water Solutions, Inc.  
ATTN: Cindy Ryals  
55 SW Yamhill St. Suite 300  
Portland OR 97204  
cryals@gsiws.com

RE: Project GSI-PR1601b

Client Project: Parcel 15 – POT (603.002.012)

Dear Ms. Ryals,

On August 16, 2016 through August 19, 2016, Brooks Applied Labs (BAL) received twenty-seven (27) aqueous samples. The samples were logged-in for the analyses of dissolved arsenic (As), dissolved iron (Fe), dissolved manganese (Mn), total recoverable As, and As speciation according to the chain-of-custody (COC) forms. All samples requiring filtration were field-filtered by the client prior to reception at BAL. All samples were received and stored according to BAL SOPs and EPA methodology.

Worth noting, all samples were received between temperatures of 6.4°C and 8.7°C. This exceeded the recommended temperature for arsenic speciation analyses; however, as this is the recommendation and, since the temperature was close to the requirement of  $4\pm 2^\circ\text{C}$ , no qualification of the data was performed.

The dissolved As result for sample *MW008-E2* (1634012-37 & -38) was much greater than the associated total As result. The samples were analyzed twice in separate sequences. The dissolved As sample container was designated for direct analysis, whereas the total As container underwent hotblock digestion. The results from the re-analyses confirmed the discrepancy between the total and dissolved results. The sample containers were examined and the client labels matched the BAL sample labels. Both samples appeared light yellow in color and neither exhibited visible particulate. BAL could only suppose that perhaps the sample labels were swapped inadvertently in the field. No further investigation could be performed.

There were several instances in which the dissolved As results were greater than the associated total As results. With the exception noted above, the As concentrations in each instance were statistically equivalent as the relative percent difference (RPD) between the total and dissolved results was less than 20%. All arsenic present should be considered to be in the dissolved form.

Additionally, the RPD was calculated between the summation of the dissolved as speciation results and the dissolved As results. Duplicate precision was achieved for all sample sets where the RPDs were  $\leq 25\%$  or the secondary criteria for duplicate precision was satisfied ( $< 5x \text{MRL} \pm 1x \text{MRL}$ ).

Instances where the matrix spike/matrix spike duplicate (MS/MSD) sets were spiked at a concentration less than 25% of the native sample result, the recoveries were not reported (**NR**) and the MSD RPD is not calculated (**N/C**), as they are not valid indicators of data quality.

*Dissolved Metals Quantitation by ICP-QQQ-MS*

All aqueous samples for dissolved metals were directly analyzed for As, Fe, and Mn by inductively coupled plasma triple quadrupole mass spectrometry (ICP-QQQ-MS). The ICP-QQQ-MS determinative method uses advanced interference removal techniques to ensure accuracy of the sample results. For more information, please visit the *Interference Reduction Technology* section on our website, [brooksapplied.com](http://brooksapplied.com).

*Total Recoverable Metals Quantitation by ICP-QQQ-MS*

All aqueous samples for total recoverable metals were digested on a hotblock apparatus with aliquots of with nitric and hydrochloric acids. The resulting digests were analyzed for As via ICP-QQQ-MS.

*Arsenic Speciation by IC-ICP-CRC-MS*


All aqueous samples for As speciation were analyzed using ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS). In accordance with the project agreement, As speciation was defined as dissolved arsenite [As(III)], arsenate [As(V)], monomethylarsonic acid [MMAs], and dimethylarsinic acid [DMAs]. Arsenic species are chromatographically separated on an ion exchange column and then quantified using inductively coupled plasma collision reaction cell mass spectrometry (ICP-CRC-MS); for more information on this determinative technique, please visit the *Interference Reduction Technology* section on our website.

All results were *not* method blank corrected, as described in the calculations section of the relevant BAL SOPs, and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

All data was reported without qualification, aside from concentration qualifiers, and all other associated quality control results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information, please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,



Tiffany Stilwater  
Client Services Manager  
tiffany@brooksapplied.com



## Report Information

### Laboratory Accreditation

BAL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BAL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksapplied.com/resources/certificates-permits/>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BAL</b>	Brooks Applied Labs	<b>MS</b>	matrix spike
<b>BLK</b>	method blank	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCB</b>	continuing calibration blank	<b>N/C</b>	not calculated
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>D</b>	dissolved fraction	<b>RPD</b>	relative percent difference
<b>DUP</b>	duplicate	<b>SCV</b>	secondary calibration verification
<b>IBL</b>	instrument blank	<b>SOP</b>	standard operating procedure
<b>ICV</b>	initial calibration verification	<b>SRM</b>	standard reference material
<b>MDL</b>	method detection limit	<b>T</b>	total fraction
<b>MRL</b>	method reporting limit	<b>TR</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>B</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Applied Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BAL.



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
WCTSW001B-E2	1634012-01	Water	Sample	08/15/2016	08/16/2016
WCTSW001B-E2	1634012-02	Water	Sample	08/15/2016	08/16/2016
WCTSW002B-E2	1634012-03	Water	Sample	08/15/2016	08/16/2016
WCTSW002B-E2	1634012-04	Water	Sample	08/15/2016	08/16/2016
WCTSW003B-E2	1634012-05	Water	Sample	08/15/2016	08/16/2016
WCTSW003B-E2	1634012-06	Water	Sample	08/15/2016	08/16/2016
WCTSW004B-E2	1634012-07	Water	Sample	08/15/2016	08/16/2016
WCTSW004B-E2	1634012-08	Water	Sample	08/15/2016	08/16/2016
WCTSW501B-E2	1634012-09	Water	Sample	08/15/2016	08/16/2016
WCTSW501B-E2	1634012-10	Water	Sample	08/15/2016	08/16/2016
BWSW001-E2	1634012-11	Water	Sample	08/15/2016	08/16/2016
BWSW001-E2	1634012-12	Water	Sample	08/15/2016	08/16/2016
USSW001-E2	1634012-13	Water	Sample	08/15/2016	08/16/2016
USSW001-E2	1634012-14	Water	Sample	08/15/2016	08/16/2016
OF2-E2	1634012-15	Water	Sample	08/15/2016	08/16/2016
OF2-E2	1634012-16	Water	Sample	08/15/2016	08/16/2016
OF3-E2	1634012-17	Water	Sample	08/15/2016	08/16/2016
OF3-E2	1634012-18	Water	Sample	08/15/2016	08/16/2016
MW002R-E2	1634012-19	Water	Sample	08/15/2016	08/16/2016
MW002R-E2	1634012-20	Water	Sample	08/15/2016	08/16/2016
MW003-E2	1634012-21	Water	Sample	08/15/2016	08/16/2016
MW003-E2	1634012-22	Water	Sample	08/15/2016	08/16/2016
MW001-E2	1634012-23	Water	Sample	08/15/2016	08/16/2016
MW001-E2	1634012-24	Water	Sample	08/15/2016	08/16/2016
MW004-E2	1634012-25	Water	Sample	08/15/2016	08/16/2016
MW004-E2	1634012-26	Water	Sample	08/15/2016	08/16/2016
MW007-E2	1634012-27	Water	Sample	08/16/2016	08/17/2016
MW007-E2	1634012-28	Water	Sample	08/16/2016	08/17/2016
MW009-E2	1634012-29	Water	Sample	08/16/2016	08/18/2016
MW009-E2	1634012-30	Water	Sample	08/16/2016	08/18/2016
B-005R-E2	1634012-31	Water	Sample	08/17/2016	08/18/2016
B-005R-E2	1634012-32	Water	Sample	08/17/2016	08/18/2016
B-505R-E2	1634012-33	Water	Sample	08/17/2016	08/18/2016
B-505R-E2	1634012-34	Water	Sample	08/17/2016	08/18/2016
HC002-E2	1634012-35	Water	Sample	08/17/2016	08/18/2016
HC002-E2	1634012-36	Water	Sample	08/17/2016	08/18/2016
MW008-E2	1634012-37	Water	Sample	08/17/2016	08/18/2016
MW008-E2	1634012-38	Water	Sample	08/17/2016	08/18/2016
MW010-E2	1634012-39	Water	Sample	08/17/2016	08/18/2016
MW010-E2	1634012-40	Water	Sample	08/17/2016	08/18/2016
MW510-E2	1634012-41	Water	Sample	08/17/2016	08/18/2016



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
MW510-E2	1634012-42	Water	Sample	08/17/2016	08/18/2016
B003R-E2	1634012-43	Water	Sample	08/18/2016	08/19/2016
B003R-E2	1634012-44	Water	Sample	08/18/2016	08/19/2016
B006R-E2	1634012-45	Water	Sample	08/18/2016	08/19/2016
B006R-E2	1634012-46	Water	Sample	08/18/2016	08/19/2016
MW011-E2	1634012-47	Water	Sample	08/18/2016	08/19/2016
MW011-E2	1634012-48	Water	Sample	08/18/2016	08/19/2016
MW012-E2	1634012-49	Water	Sample	08/18/2016	08/19/2016
MW012-E2	1634012-50	Water	Sample	08/18/2016	08/19/2016
B001R-E2	1634012-51	Water	Sample	08/18/2016	08/19/2016
B001R-E2	1634012-52	Water	Sample	08/18/2016	08/19/2016
MW013-E2	1634012-53	Water	Sample	08/18/2016	08/19/2016
MW013-E2	1634012-54	Water	Sample	08/18/2016	08/19/2016

## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
As	Water	EPA 1638 Mod	09/07/2016	09/13/2016	B162054	1601033
As	Water	EPA 1638 Mod	09/07/2016	09/08/2016	B162054	1601020
As	Water	EPA 1638 Mod	08/24/2016	08/27/2016	B162055	1600971
As	Water	EPA 1638 Mod	08/24/2016	09/06/2016	B162055	1601014
As(III)	Water	IC-ICP-MS	08/24/2016	08/26/2016	B162062	1600966
As(V)	Water	IC-ICP-MS	08/24/2016	08/26/2016	B162062	1600966
DMAs	Water	IC-ICP-MS	08/24/2016	08/26/2016	B162062	1600966
Fe	Water	EPA 1638 Mod	09/07/2016	09/08/2016	B162054	1601020
MMAs	Water	IC-ICP-MS	08/24/2016	08/26/2016	B162062	1600966
Mn	Water	EPA 1638 Mod	09/07/2016	09/08/2016	B162054	1601020



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>B001R-E2</b>										
1634012-52	As	Water	D	79800		7.07	40.4	µg/L	B162054	1601033
1634012-51	As	Water	TR	66300		42.4	84.8	µg/L	B162055	1601014
1634012-52	As(III)	Water	D	8010		200	2000	µg/L	B162062	1600966
1634012-52	As(V)	Water	D	1750	B	200	2000	µg/L	B162062	1600966
1634012-52	DMAs	Water	D	≤ 300	U	300	2100	µg/L	B162062	1600966
1634012-52	Fe	Water	D	122000		7.07	21.5	µg/L	B162054	1601020
1634012-52	MMAAs	Water	D	≤ 300	U	300	2300	µg/L	B162062	1600966
1634012-52	Mn	Water	D	1960		0.530	1.59	µg/L	B162054	1601020
<b>B003R-E2</b>										
1634012-44	As	Water	D	373		7.07	40.4	µg/L	B162054	1601033
1634012-43	As	Water	TR	403		0.530	1.06	µg/L	B162055	1600971
1634012-44	Fe	Water	D	11100		7.07	21.5	µg/L	B162054	1601020
1634012-44	Mn	Water	D	558		0.530	1.59	µg/L	B162054	1601020
<b>B-005R-E2</b>										
1634012-31	As	Water	TR	≤ 0.530	U	0.530	1.06	µg/L	B162055	1600971
1634012-32	As	Water	D	0.521	B	0.177	1.01	µg/L	B162054	1601020
1634012-32	Fe	Water	D	32200		7.07	21.5	µg/L	B162054	1601020
1634012-32	Mn	Water	D	1060		0.530	1.59	µg/L	B162054	1601020
<b>B006R-E2</b>										
1634012-46	As	Water	D	53.1		7.07	40.4	µg/L	B162054	1601033
1634012-45	As	Water	TR	69.1		0.530	1.06	µg/L	B162055	1600971
1634012-46	Fe	Water	D	70500		7.07	21.5	µg/L	B162054	1601020
1634012-46	Mn	Water	D	1250		0.530	1.59	µg/L	B162054	1601020
<b>B-505R-E2</b>										
1634012-34	As	Water	D	≤ 7.07	U	7.07	40.4	µg/L	B162054	1601033
1634012-33	As	Water	TR	≤ 0.530	U	0.530	1.06	µg/L	B162055	1600971
1634012-34	Fe	Water	D	31800		7.07	21.5	µg/L	B162054	1601020
1634012-34	Mn	Water	D	1070		0.530	1.59	µg/L	B162054	1601020
<b>BWSW001-E2</b>										
1634012-12	As	Water	D	1.46		0.177	1.01	µg/L	B162054	1601033
1634012-11	As	Water	TR	1.69		0.530	1.06	µg/L	B162055	1600971
1634012-12	Fe	Water	D	≤ 7.07	U	7.07	21.5	µg/L	B162054	1601020
1634012-12	Mn	Water	D	15.0		0.530	1.59	µg/L	B162054	1601020



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>HC002-E2</b>										
1634012-36	As	Water	D	47100		7.07	40.4	µg/L	B162054	1601033
1634012-35	As	Water	TR	48400		42.4	84.8	µg/L	B162055	1601014
1634012-36	As(III)	Water	D	39600		20.0	200	µg/L	B162062	1600966
1634012-36	As(V)	Water	D	12500		20.0	200	µg/L	B162062	1600966
1634012-36	DMAs	Water	D	≤ 30.0	U	30.0	210	µg/L	B162062	1600966
1634012-36	Fe	Water	D	166000		7.07	21.5	µg/L	B162054	1601020
1634012-36	MMAAs	Water	D	≤ 30.0	U	30.0	230	µg/L	B162062	1600966
1634012-36	Mn	Water	D	5050		0.530	1.59	µg/L	B162054	1601020
<b>MW001-E2</b>										
1634012-23	As	Water	TR	17.0		0.530	1.06	µg/L	B162055	1600971
1634012-24	As	Water	D	17.5		0.177	1.01	µg/L	B162054	1601020
1634012-24	Fe	Water	D	54100		7.07	21.5	µg/L	B162054	1601020
1634012-24	Mn	Water	D	1960		0.530	1.59	µg/L	B162054	1601020
<b>MW002R-E2</b>										
1634012-20	As	Water	D	3.65		0.177	1.01	µg/L	B162054	1601033
1634012-19	As	Water	TR	5.21		0.530	1.06	µg/L	B162055	1600971
1634012-20	Fe	Water	D	≤ 7.07	U	7.07	21.5	µg/L	B162054	1601020
1634012-20	Mn	Water	D	1.13	B	0.530	1.59	µg/L	B162054	1601020
<b>MW003-E2</b>										
1634012-22	As	Water	D	10.7		0.177	1.01	µg/L	B162054	1601033
1634012-21	As	Water	TR	10.9		0.530	1.06	µg/L	B162055	1600971
1634012-22	Fe	Water	D	47700		7.07	21.5	µg/L	B162054	1601020
1634012-22	Mn	Water	D	1190		0.530	1.59	µg/L	B162054	1601020
<b>MW004-E2</b>										
1634012-26	As	Water	D	3.91		0.177	1.01	µg/L	B162054	1601033
1634012-25	As	Water	TR	3.33		0.530	1.06	µg/L	B162055	1600971
1634012-26	Fe	Water	D	5000		7.07	21.5	µg/L	B162054	1601020
1634012-26	Mn	Water	D	652		0.530	1.59	µg/L	B162054	1601020





## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MW007-E2</b>										
1634012-27	As	Water	TR	25.7		0.530	1.06	µg/L	B162055	1600971
1634012-28	As	Water	D	27.5		0.177	1.01	µg/L	B162054	1601020
1634012-28	As(III)	Water	D	0.924	B	0.100	1.00	µg/L	B162062	1600966
1634012-28	As(V)	Water	D	30.5		0.100	1.00	µg/L	B162062	1600966
1634012-28	DMAs	Water	D	≤ 0.150	U	0.150	1.05	µg/L	B162062	1600966
1634012-28	Fe	Water	D	123000		7.07	21.5	µg/L	B162054	1601020
1634012-28	MMAs	Water	D	≤ 0.150	U	0.150	1.15	µg/L	B162062	1600966
1634012-28	Mn	Water	D	7980		0.530	1.59	µg/L	B162054	1601020
<b>MW008-E2</b>										
1634012-38	As	Water	D	71.8		7.07	40.4	µg/L	B162054	1601033
1634012-37	As	Water	TR	12.8		0.212	0.424	µg/L	B162055	1601014
1634012-38	Fe	Water	D	68300		7.07	21.5	µg/L	B162054	1601020
1634012-38	Mn	Water	D	1810		0.530	1.59	µg/L	B162054	1601020
<b>MW009-E2</b>										
1634012-29	As	Water	TR	53.7		0.530	1.06	µg/L	B162055	1600971
1634012-30	As	Water	D	54.5		0.177	1.01	µg/L	B162054	1601020
1634012-30	As(III)	Water	D	3.11	B	0.400	4.00	µg/L	B162062	1600966
1634012-30	As(V)	Water	D	50.8		0.400	4.00	µg/L	B162062	1600966
1634012-30	DMAs	Water	D	≤ 0.600	U	0.600	4.20	µg/L	B162062	1600966
1634012-30	Fe	Water	D	201000		7.07	21.5	µg/L	B162054	1601020
1634012-30	MMAs	Water	D	≤ 0.600	U	0.600	4.60	µg/L	B162062	1600966
1634012-30	Mn	Water	D	4960		0.530	1.59	µg/L	B162054	1601020
<b>MW010-E2</b>										
1634012-40	As	Water	D	32000		7.07	40.4	µg/L	B162054	1601033
1634012-39	As	Water	TR	33700		42.4	84.8	µg/L	B162055	1601014
1634012-40	As(III)	Water	D	23400		20.0	200	µg/L	B162062	1600966
1634012-40	As(V)	Water	D	10700		20.0	200	µg/L	B162062	1600966
1634012-40	DMAs	Water	D	≤ 30.0	U	30.0	210	µg/L	B162062	1600966
1634012-40	Fe	Water	D	143000		7.07	21.5	µg/L	B162054	1601020
1634012-40	MMAs	Water	D	≤ 30.0	U	30.0	230	µg/L	B162062	1600966
1634012-40	Mn	Water	D	5220		0.530	1.59	µg/L	B162054	1601020



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MW011-E2</b>										
1634012-48	As	Water	D	24.1	B	7.07	40.4	µg/L	B162054	1601033
1634012-47	As	Water	TR	34.3		0.212	0.424	µg/L	B162055	1601014
1634012-48	Fe	Water	D	55200		7.07	21.5	µg/L	B162054	1601020
1634012-48	Mn	Water	D	2540		0.530	1.59	µg/L	B162054	1601020
<b>MW012-E2</b>										
1634012-50	As	Water	D	10.0	B	7.07	40.4	µg/L	B162054	1601033
1634012-49	As	Water	TR	14.7		0.212	0.424	µg/L	B162055	1601014
1634012-50	As(III)	Water	D	0.318	B	0.100	1.00	µg/L	B162062	1600966
1634012-50	As(V)	Water	D	13.9		0.100	1.00	µg/L	B162062	1600966
1634012-50	DMAs	Water	D	≤ 0.150	U	0.150	1.05	µg/L	B162062	1600966
1634012-50	Fe	Water	D	105000		7.07	21.5	µg/L	B162054	1601020
1634012-50	MMAs	Water	D	0.211	B	0.150	1.15	µg/L	B162062	1600966
1634012-50	Mn	Water	D	6610		0.530	1.59	µg/L	B162054	1601020
<b>MW013-E2</b>										
1634012-54	As	Water	D	33100		7.07	40.4	µg/L	B162054	1601033
1634012-53	As	Water	TR	36800		42.4	84.8	µg/L	B162055	1601014
1634012-54	As(III)	Water	D	26500		20.0	200	µg/L	B162062	1600966
1634012-54	As(V)	Water	D	10400		20.0	200	µg/L	B162062	1600966
1634012-54	DMAs	Water	D	≤ 30.0	U	30.0	210	µg/L	B162062	1600966
1634012-54	Fe	Water	D	118000		7.07	21.5	µg/L	B162054	1601020
1634012-54	MMAs	Water	D	≤ 30.0	U	30.0	230	µg/L	B162062	1600966
1634012-54	Mn	Water	D	6680		0.530	1.59	µg/L	B162054	1601020
<b>MW510-E2</b>										
1634012-42	As	Water	D	28200		7.07	40.4	µg/L	B162054	1601033
1634012-41	As	Water	TR	34700		42.4	84.8	µg/L	B162055	1601014
1634012-42	As(III)	Water	D	24000		20.0	200	µg/L	B162062	1600966
1634012-42	As(V)	Water	D	10200		20.0	200	µg/L	B162062	1600966
1634012-42	DMAs	Water	D	≤ 30.0	U	30.0	210	µg/L	B162062	1600966
1634012-42	Fe	Water	D	145000		7.07	21.5	µg/L	B162054	1601020
1634012-42	MMAs	Water	D	≤ 30.0	U	30.0	230	µg/L	B162062	1600966
1634012-42	Mn	Water	D	5290		0.530	1.59	µg/L	B162054	1601020



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>OF2-E2</b>										
1634012-15	As	Water	TR	92.5		0.530	1.06	µg/L	B162055	1600971
1634012-16	As	Water	D	38.9		0.177	1.01	µg/L	B162054	1601020
1634012-16	Fe	Water	D	9.73	B	7.07	21.5	µg/L	B162054	1601020
1634012-16	Mn	Water	D	441		0.530	1.59	µg/L	B162054	1601020
<b>OF3-E2</b>										
1634012-17	As	Water	TR	415		0.530	1.06	µg/L	B162055	1600971
1634012-18	As	Water	D	284		0.177	1.01	µg/L	B162054	1601020
1634012-18	Fe	Water	D	7.75	B	7.07	21.5	µg/L	B162054	1601020
1634012-18	Mn	Water	D	334		0.530	1.59	µg/L	B162054	1601020
<b>USSW001-E2</b>										
1634012-13	As	Water	TR	0.702	B	0.530	1.06	µg/L	B162055	1600971
1634012-14	As	Water	D	0.533	B	0.177	1.01	µg/L	B162054	1601020
1634012-14	Fe	Water	D	125		7.07	21.5	µg/L	B162054	1601020
1634012-14	Mn	Water	D	18.0		0.530	1.59	µg/L	B162054	1601020
<b>WCTSW001B-E2</b>										
1634012-01	As	Water	TR	9.88				µg/L	B162055	1601014
1634012-02	As	Water	D	1.97		0.177	1.01	µg/L	B162054	1601020
1634012-02	Fe	Water	D	447		7.07	21.5	µg/L	B162054	1601020
1634012-02	Mn	Water	D	128		0.530	1.59	µg/L	B162054	1601020
<b>WCTSW002B-E2</b>										
1634012-04	As	Water	D	0.903	B	0.177	1.01	µg/L	B162054	1601033
1634012-03	As	Water	TR	3.95		0.530	1.06	µg/L	B162055	1600971
1634012-04	Fe	Water	D	495		7.07	21.5	µg/L	B162054	1601020
1634012-04	Mn	Water	D	118		0.530	1.59	µg/L	B162054	1601020
<b>WCTSW003B-E2</b>										
1634012-06	As	Water	D	1.42		0.177	1.01	µg/L	B162054	1601033
1634012-05	As	Water	TR	3.01		0.530	1.06	µg/L	B162055	1600971
1634012-06	Fe	Water	D	564		7.07	21.5	µg/L	B162054	1601020
1634012-06	Mn	Water	D	111		0.530	1.59	µg/L	B162054	1601020



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTSW004B-E2</b>										
1634012-08	As	Water	D	0.402	B	0.177	1.01	µg/L	B162054	1601033
1634012-07	As	Water	TR	1.53		0.530	1.06	µg/L	B162055	1600971
1634012-08	Fe	Water	D	218		7.07	21.5	µg/L	B162054	1601020
1634012-08	Mn	Water	D	35.9		0.530	1.59	µg/L	B162054	1601020
<b>WCTSW501B-E2</b>										
1634012-10	As	Water	D	1.76		0.177	1.01	µg/L	B162054	1601033
1634012-09	As	Water	TR	7.29		0.530	1.06	µg/L	B162055	1600971
1634012-10	Fe	Water	D	441		7.07	21.5	µg/L	B162054	1601020
1634012-10	Mn	Water	D	126		0.530	1.59	µg/L	B162054	1601020



## Accuracy & Precision Summary

Batch: B162054  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B162054-SRM1</b>	<b>Certified Reference Material, (NC00370, T191 as SRM)</b>						
	As		4.080	3.948	µg/L	97% 75-125	
	Fe		83.00	78.30	µg/L	94% 75-125	
	Mn		27.00	25.59	µg/L	95% 75-125	
<b>B162054-DUP1</b>	<b>Duplicate, (1634012-02)</b>						
	As	1.966		2.029	µg/L		3% 20
	Fe	447.2		436.6	µg/L		2% 20
	Mn	128.4		125.5	µg/L		2% 20
<b>B162054-MS1</b>	<b>Matrix Spike, (1634012-02)</b>						
	As	1.966	252.5	277.5	µg/L	109% 75-125	
	Fe	447.2	2525	2739	µg/L	91% 75-125	
	Mn	128.4	252.5	354.2	µg/L	89% 75-125	
<b>B162054-MSD1</b>	<b>Matrix Spike Duplicate, (1634012-02)</b>						
	As	1.966	252.5	268.5	µg/L	106% 75-125	3% 20
	Fe	447.2	2525	2657	µg/L	88% 75-125	3% 20
	Mn	128.4	252.5	356.6	µg/L	90% 75-125	0.7% 20
<b>B162054-DUP2</b>	<b>Duplicate, (1634012-22)</b>						
	Fe	47730		47590	µg/L		0.3% 20
	Mn	1186		1220	µg/L		3% 20
<b>B162054-DUP4</b>	<b>Duplicate, (1634012-22)</b>						
	As	10.67		9.056	µg/L		16% 20
<b>B162054-MS2</b>	<b>Matrix Spike, (1634012-22)</b>						
	Fe	47730	2525	49610	µg/L	NR 75-125	
	Mn	1186	252.5	1368	µg/L	NR 75-125	
<b>B162054-MS4</b>	<b>Matrix Spike, (1634012-22)</b>						
	As	10.67	252.5	246.3	µg/L	93% 75-125	



## Accuracy & Precision Summary

Batch: B162054  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B162054-MSD2	<b>Matrix Spike Duplicate, (1634012-22)</b>						
	Fe	47730	2525	49070	µg/L	NR 75-125	N/C 20
	Mn	1186	252.5	1394	µg/L	NR 75-125	N/C 20
B162054-MSD4	<b>Matrix Spike Duplicate, (1634012-22)</b>						
	As	10.67	252.5	259.1	µg/L	98% 75-125	5% 20
B162054-DUP3	<b>Duplicate, (1634012-42)</b>						
	Fe	145300		150300	µg/L		3% 20
	Mn	5293		5208	µg/L		2% 20
B162054-MS3	<b>Matrix Spike, (1634012-42)</b>						
	Fe	145300	2525	150000	µg/L	NR 75-125	
	Mn	5293	252.5	5263	µg/L	NR 75-125	
B162054-MSD3	<b>Matrix Spike Duplicate, (1634012-42)</b>						
	Fe	145300	2525	147900	µg/L	NR 75-125	N/C 20
	Mn	5293	252.5	5519	µg/L	NR 75-125	N/C 20
B162054-DUP5	<b>Duplicate, (1634012-44)</b>						
	As	372.8		324.9	µg/L		14% 20
B162054-MS5	<b>Matrix Spike, (1634012-44)</b>						
	As	372.8	10100	9637	µg/L	92% 75-125	
B162054-MSD5	<b>Matrix Spike Duplicate, (1634012-44)</b>						
	As	372.8	10100	9861	µg/L	94% 75-125	2% 20



## Accuracy & Precision Summary

Batch: B162055  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B162055-BS1	Laboratory Fortified Blank, (1635032) As		200.0	197.9	µg/L	99% 75-125	
B162055-BS2	Laboratory Fortified Blank, (1635032) As		200.0	202.3	µg/L	101% 75-125	
B162055-SRM1	Certified Reference Material, (NC00148, TMDA 70.2 Reference Standard - Bottle5) As		42.20	42.44	µg/L	101% 75-125	
B162055-SRM2	Certified Reference Material, (NC00148, TMDA 70.2 Reference Standard - Bottle5) As		42.20	41.13	µg/L	97% 75-125	
B162055-DUP4	Duplicate, (1634012-01) As	9.882		10.23	µg/L		3% 20
B162055-MS4	Matrix Spike, (1634012-01) As	9.882	202.0	215.4	µg/L	102% 75-125	
B162055-MSD4	Matrix Spike Duplicate, (1634012-01) As	9.882	202.0	229.4	µg/L	109% 75-125	6% 20
B162055-DUP2	Duplicate, (1634012-27) As	25.68		24.87	µg/L		3% 20
B162055-MS2	Matrix Spike, (1634012-27) As	25.68	202.0	215.8	µg/L	94% 75-125	
B162055-MSD2	Matrix Spike Duplicate, (1634012-27) As	25.68	202.0	222.4	µg/L	97% 75-125	3% 20
B162055-DUP3	Duplicate, (1634027-06) As	13.98		11.67	µg/L		18% 20
B162055-MS3	Matrix Spike, (1634027-06) As	13.98	202.0	201.2	µg/L	93% 75-125	



## Accuracy & Precision Summary

**Batch:** B162055  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B162055-MSD3	Matrix Spike Duplicate, (1634027-06) As	13.98	202.0	211.0	µg/L	98% 75-125	5% 20





## Accuracy & Precision Summary

Batch: B162062  
 Lab Matrix: Water  
 Method: IC-ICP-MS

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B162062-BS1</b>	<b>Laboratory Fortified Blank, (NC00024)</b>						
	As(III)		5.000	5.081	µg/L	102% 75-125	
	As(V)		5.000	5.206	µg/L	104% 75-125	
	DMAs		3.198	3.361	µg/L	105% 75-125	
<b>B162062-BS2</b>	<b>Laboratory Fortified Blank, (1545039)</b>						
	MMAAs		5.270	4.544	µg/L	86% 75-125	
<b>B162062-DUP2</b>	<b>Duplicate, (1634012-54)</b>						
	As(III)	26510		26370	µg/L		0.5% 25
	As(V)	10440		10420	µg/L		0.2% 25
	DMAs	ND		ND	µg/L		N/C 25
	MMAAs	ND		ND	µg/L		N/C 25
<b>B162062-MS1</b>	<b>Matrix Spike, (1635021-14)</b>						
	As(III)	21350	10000	31000	µg/L	97% 75-125	
	As(V)	1135	10000	12000	µg/L	109% 75-125	
	DMAs	1157	10420	11340	µg/L	98% 75-125	
	MMAAs	17210	11730	28750	µg/L	98% 75-125	
<b>B162062-MSD1</b>	<b>Matrix Spike Duplicate, (1635021-14)</b>						
	As(III)	21350	10000	31030	µg/L	97% 75-125	0.09% 25
	As(V)	1135	10000	12240	µg/L	111% 75-125	2% 25
	DMAs	1157	10420	11370	µg/L	98% 75-125	0.3% 25
	MMAAs	17210	11730	28630	µg/L	97% 75-125	0.4% 25



## Method Blanks & Reporting Limits

**Batch:** B162054  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units			
B162054-BLK1	0.006	µg/L			
B162054-BLK2	0.00008	µg/L			
B162054-BLK3	-0.002	µg/L			
B162054-BLK4	-0.003	µg/L			
<b>Average:</b>	<b>0.000</b>		<b>Standard Deviation:</b>	<b>0.004</b>	<b>MDL:</b> 0.007
<b>Limit:</b>	<b>0.040</b>		<b>Limit:</b>	<b>0.007</b>	<b>MRL:</b> 0.040

**Analyte:** Fe

Sample	Result	Units			
B162054-BLK1	-0.36	µg/L			
B162054-BLK2	-0.53	µg/L			
B162054-BLK3	-0.51	µg/L			
B162054-BLK4	-0.49	µg/L			
<b>Average:</b>	<b>-0.47</b>		<b>Standard Deviation:</b>	<b>0.08</b>	<b>MDL:</b> 0.28
<b>Limit:</b>	<b>0.85</b>		<b>Limit:</b>	<b>0.28</b>	<b>MRL:</b> 0.85

**Analyte:** Mn

Sample	Result	Units			
B162054-BLK1	-0.003	µg/L			
B162054-BLK2	-0.008	µg/L			
B162054-BLK3	-0.001	µg/L			
B162054-BLK4	-0.010	µg/L			
<b>Average:</b>	<b>-0.006</b>		<b>Standard Deviation:</b>	<b>0.004</b>	<b>MDL:</b> 0.021
<b>Limit:</b>	<b>0.063</b>		<b>Limit:</b>	<b>0.021</b>	<b>MRL:</b> 0.063



## Method Blanks & Reporting Limits

**Batch:** B162055  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units		
B162055-BLK1	0.008	µg/L		
B162055-BLK2	0.007	µg/L		
B162055-BLK3	0.008	µg/L		
B162055-BLK4	0.027	µg/L		
<b>Average:</b>	<b>0.013</b>		<b>Standard Deviation:</b>	<b>0.010</b>
<b>Limit:</b>	<b>0.084</b>		<b>Limit:</b>	<b>0.042</b>
			<b>MDL:</b>	<b>0.042</b>
			<b>MRL:</b>	<b>0.084</b>



## Method Blanks & Reporting Limits

**Batch:** B162062  
**Matrix:** Water  
**Method:** IC-ICP-MS  
**Analyte:** As(III)

Sample	Result	Units	
B162062-BLK1	0.00	µg/L	
B162062-BLK2	0.00	µg/L	
B162062-BLK3	0.00	µg/L	
B162062-BLK4	0.00	µg/L	
<b>Average:</b>	0.000		<b>MDL:</b> 0.002
<b>Limit:</b>	0.020		<b>MRL:</b> 0.020

**Analyte:** As(V)

Sample	Result	Units	
B162062-BLK1	0.001	µg/L	
B162062-BLK2	0.001	µg/L	
B162062-BLK3	0.001	µg/L	
B162062-BLK4	0.0006	µg/L	
<b>Average:</b>	0.001		<b>MDL:</b> 0.002
<b>Limit:</b>	0.020		<b>MRL:</b> 0.020

**Analyte:** DMAs

Sample	Result	Units	
B162062-BLK1	0.001	µg/L	
B162062-BLK2	0.005	µg/L	
B162062-BLK3	0.001	µg/L	
B162062-BLK4	0.0005	µg/L	
<b>Average:</b>	0.002		<b>MDL:</b> 0.003
<b>Limit:</b>	0.021		<b>MRL:</b> 0.021



## Method Blanks & Reporting Limits

**Analyte:** MMAs

<b>Sample</b>	<b>Result</b>	<b>Units</b>	
B162062-BLK1	0.00	µg/L	
B162062-BLK2	0.0005	µg/L	
B162062-BLK3	0.0007	µg/L	
B162062-BLK4	0.0005	µg/L	
<b>Average:</b> 0.000			<b>MDL:</b> 0.003
<b>Limit:</b> 0.023			<b>MRL:</b> 0.023



## Sample Containers

<b>Lab ID:</b> 1634012-01 <b>Sample:</b> WCTSW001B-E2 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b> 16-0142	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1%HNO3 (BAL)	<b>P-Lot</b> 1630022	<b>Collected:</b> 08/15/2016 <b>Received:</b> 08/16/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 1
<b>Lab ID:</b> 1634012-02 <b>Sample:</b> WCTSW001B-E2 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b> 16-0142	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1630022	<b>Collected:</b> 08/15/2016 <b>Received:</b> 08/16/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 1
<b>Lab ID:</b> 1634012-03 <b>Sample:</b> WCTSW002B-E2 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b> 16-0142	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1%HNO3 (BAL)	<b>P-Lot</b> 1630022	<b>Collected:</b> 08/15/2016 <b>Received:</b> 08/16/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 1
<b>Lab ID:</b> 1634012-04 <b>Sample:</b> WCTSW002B-E2 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b> 16-0142	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1630022	<b>Collected:</b> 08/15/2016 <b>Received:</b> 08/16/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 1
<b>Lab ID:</b> 1634012-05 <b>Sample:</b> WCTSW003B-E2 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b> 16-0142	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1%HNO3 (BAL)	<b>P-Lot</b> 1630022	<b>Collected:</b> 08/15/2016 <b>Received:</b> 08/16/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 1
<b>Lab ID:</b> 1634012-06 <b>Sample:</b> WCTSW003B-E2 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 250mL	<b>Lot</b> 16-0142	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1% HNO3 (BAL)	<b>P-Lot</b> 1630022	<b>Collected:</b> 08/15/2016 <b>Received:</b> 08/16/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 1



## Sample Containers

<b>Lab ID:</b> 1634012-07 <b>Sample:</b> WCTSW004B-E2			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 08/15/2016 <b>Received:</b> 08/16/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 1
<b>Lab ID:</b> 1634012-08 <b>Sample:</b> WCTSW004B-E2			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 08/15/2016 <b>Received:</b> 08/16/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 1
<b>Lab ID:</b> 1634012-09 <b>Sample:</b> WCTSW501B-E2			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 08/15/2016 <b>Received:</b> 08/16/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 1
<b>Lab ID:</b> 1634012-10 <b>Sample:</b> WCTSW501B-E2			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 08/15/2016 <b>Received:</b> 08/16/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 1
<b>Lab ID:</b> 1634012-11 <b>Sample:</b> BWSW001-E2			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 08/15/2016 <b>Received:</b> 08/16/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 1
<b>Lab ID:</b> 1634012-12 <b>Sample:</b> BWSW001-E2			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 08/15/2016 <b>Received:</b> 08/16/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 1



## Sample Containers

<b>Lab ID:</b> 1634012-13		<b>Report Matrix:</b> Water			<b>Collected:</b> 08/15/2016	
<b>Sample:</b> USSW001-E2		<b>Sample Type:</b> Sample			<b>Received:</b> 08/16/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2   Cooler 1
<b>Lab ID:</b> 1634012-14		<b>Report Matrix:</b> Water			<b>Collected:</b> 08/15/2016	
<b>Sample:</b> USSW001-E2		<b>Sample Type:</b> Sample			<b>Received:</b> 08/16/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2   Cooler 1
<b>Lab ID:</b> 1634012-15		<b>Report Matrix:</b> Water			<b>Collected:</b> 08/15/2016	
<b>Sample:</b> OF2-E2		<b>Sample Type:</b> Sample			<b>Received:</b> 08/16/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2   Cooler 1
<b>Lab ID:</b> 1634012-16		<b>Report Matrix:</b> Water			<b>Collected:</b> 08/15/2016	
<b>Sample:</b> OF2-E2		<b>Sample Type:</b> Sample			<b>Received:</b> 08/16/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2   Cooler 1
<b>Lab ID:</b> 1634012-17		<b>Report Matrix:</b> Water			<b>Collected:</b> 08/15/2016	
<b>Sample:</b> OF3-E2		<b>Sample Type:</b> Sample			<b>Received:</b> 08/16/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2   Cooler 1
<b>Lab ID:</b> 1634012-18		<b>Report Matrix:</b> Water			<b>Collected:</b> 08/15/2016	
<b>Sample:</b> OF3-E2		<b>Sample Type:</b> Sample			<b>Received:</b> 08/16/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2   Cooler 1





## Sample Containers

Lab ID:	Sample:	Des	Container	Size	Lot	Report Matrix:	Sample Type:	Preservation	P-Lot	Collected:	Received:	pH	Ship. Cont.
1634012-19	MW002R-E2	A	Bottle HDPE ICP-W	250mL	16-0142	Water	Sample	1%HNO3 (BAL)	1630022	08/15/2016	08/16/2016	<2	Cooler 1
1634012-20	MW002R-E2	A	Bottle HDPE ICP-W	250mL	16-0142	Water	Sample	1% HNO3 (BAL)	1630022	08/15/2016	08/16/2016	<2	Cooler 1
1634012-21	MW003-E2	A	Bottle HDPE ICP-W	250mL	16-0142	Water	Sample	1%HNO3 (BAL)	1630022	08/15/2016	08/16/2016	<2	Cooler 1
1634012-22	MW003-E2	A	Bottle HDPE ICP-W	250mL	16-0142	Water	Sample	1% HNO3 (BAL)	1630022	08/15/2016	08/16/2016	<2	Cooler 1
1634012-23	MW001-E2	A	Bottle HDPE ICP-W	250mL	16-0142	Water	Sample	1%HNO3 (BAL)	1630022	08/15/2016	08/16/2016	<2	Cooler 1
1634012-24	MW001-E2	A	Bottle HDPE ICP-W	250mL	16-0142	Water	Sample	1% HNO3 (BAL)	1630022	08/15/2016	08/16/2016	<2	Cooler 1



## Sample Containers

Lab ID: 1634012-25		Report Matrix: Water				Collected: 08/15/2016	
Sample: MW004-E2		Sample Type: Sample				Received: 08/16/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 1

Lab ID: 1634012-26		Report Matrix: Water				Collected: 08/15/2016	
Sample: MW004-E2		Sample Type: Sample				Received: 08/16/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 1

Lab ID: 1634012-27		Report Matrix: Water				Collected: 08/16/2016	
Sample: MW007-E2		Sample Type: Sample				Received: 08/17/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 3

Lab ID: 1634012-28		Report Matrix: Water				Collected: 08/16/2016	
Sample: MW007-E2		Sample Type: Sample				Received: 08/17/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 3
B	Vacutainer	6mL	16-0133	EDTA (PP)	Not Provided		Cooler 3
C	EXTRA_VOL	6mL	16-0133	EDTA (PP)	Not Provided		Cooler 3

Lab ID: 1634012-29		Report Matrix: Water				Collected: 08/16/2016	
Sample: MW009-E2		Sample Type: Sample				Received: 08/18/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 2



## Sample Containers

**Lab ID:** 1634012-30      **Report Matrix:** Water      **Collected:** 08/16/2016  
**Sample:** MW009-E2      **Sample Type:** Sample      **Received:** 08/18/2016

**Comments:** Dissolved fraction appears darker and murkier than total fraction (-29)

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 2
B	Vacutainer	6mL	16-0133	EDTA (PP)	Not Provided		Cooler 2
C	EXTRA_VOL	6mL	16-0133	EDTA (PP)	Not Provided		Cooler 2

**Lab ID:** 1634012-31      **Report Matrix:** Water      **Collected:** 08/17/2016  
**Sample:** B-005R-E2      **Sample Type:** Sample      **Received:** 08/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 2

**Lab ID:** 1634012-32      **Report Matrix:** Water      **Collected:** 08/17/2016  
**Sample:** B-005R-E2      **Sample Type:** Sample      **Received:** 08/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 2

**Lab ID:** 1634012-33      **Report Matrix:** Water      **Collected:** 08/17/2016  
**Sample:** B-505R-E2      **Sample Type:** Sample      **Received:** 08/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 2

**Lab ID:** 1634012-34      **Report Matrix:** Water      **Collected:** 08/17/2016  
**Sample:** B-505R-E2      **Sample Type:** Sample      **Received:** 08/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 2



## Sample Containers

**Lab ID:** 1634012-35  
**Sample:** HC002-E2  
**Report Matrix:** Water  
**Sample Type:** Sample  
**Collected:** 08/17/2016  
**Received:** 08/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 2

**Lab ID:** 1634012-36  
**Sample:** HC002-E2  
**Report Matrix:** Water  
**Sample Type:** Sample  
**Collected:** 08/17/2016  
**Received:** 08/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 2
B	Vacutainer	6mL	16-0133	EDTA (PP)	Not Provided		Cooler 2
C	EXTRA_VOL	6mL	16-0133	EDTA (PP)	Not Provided		Cooler 2

**Lab ID:** 1634012-37  
**Sample:** MW008-E2  
**Report Matrix:** Water  
**Sample Type:** Sample  
**Collected:** 08/17/2016  
**Received:** 08/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 2

**Lab ID:** 1634012-38  
**Sample:** MW008-E2  
**Report Matrix:** Water  
**Sample Type:** Sample  
**Collected:** 08/17/2016  
**Received:** 08/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 2

**Lab ID:** 1634012-39  
**Sample:** MW010-E2  
**Report Matrix:** Water  
**Sample Type:** Sample  
**Collected:** 08/17/2016  
**Received:** 08/18/2016

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 2



## Sample Containers

<b>Lab ID:</b> 1634012-40		<b>Report Matrix:</b> Water				<b>Collected:</b> 08/17/2016	
<b>Sample:</b> MW010-E2		<b>Sample Type:</b> Sample				<b>Received:</b> 08/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 2
B	Vacutainer	6mL	16-0133	EDTA (PP)	Not Provided		Cooler 2
C	EXTRA_VOL	6mL	16-0133	EDTA (PP)	Not Provided		Cooler 2

<b>Lab ID:</b> 1634012-41		<b>Report Matrix:</b> Water				<b>Collected:</b> 08/17/2016	
<b>Sample:</b> MW510-E2		<b>Sample Type:</b> Sample				<b>Received:</b> 08/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 2

<b>Lab ID:</b> 1634012-42		<b>Report Matrix:</b> Water				<b>Collected:</b> 08/17/2016	
<b>Sample:</b> MW510-E2		<b>Sample Type:</b> Sample				<b>Received:</b> 08/18/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 2
B	Vacutainer	6mL	16-0133	EDTA (PP)	Not Provided		Cooler 2
C	EXTRA_VOL	6mL	16-0133	EDTA (PP)	Not Provided		Cooler 2

<b>Lab ID:</b> 1634012-43		<b>Report Matrix:</b> Water				<b>Collected:</b> 08/18/2016	
<b>Sample:</b> B003R-E2		<b>Sample Type:</b> Sample				<b>Received:</b> 08/19/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 4

<b>Lab ID:</b> 1634012-44		<b>Report Matrix:</b> Water				<b>Collected:</b> 08/18/2016	
<b>Sample:</b> B003R-E2		<b>Sample Type:</b> Sample				<b>Received:</b> 08/19/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 4



## Sample Containers

Lab ID: 1634012-45		Report Matrix: Water				Collected: 08/18/2016	
Sample: B006R-E2		Sample Type: Sample				Received: 08/19/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 4
Lab ID: 1634012-46		Report Matrix: Water				Collected: 08/18/2016	
Sample: B006R-E2		Sample Type: Sample				Received: 08/19/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 4
Lab ID: 1634012-47		Report Matrix: Water				Collected: 08/18/2016	
Sample: MW011-E2		Sample Type: Sample				Received: 08/19/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 4
Lab ID: 1634012-48		Report Matrix: Water				Collected: 08/18/2016	
Sample: MW011-E2		Sample Type: Sample				Received: 08/19/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 4
Lab ID: 1634012-49		Report Matrix: Water				Collected: 08/18/2016	
Sample: MW012-E2		Sample Type: Sample				Received: 08/19/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2	Cooler 4
Lab ID: 1634012-50		Report Matrix: Water				Collected: 08/18/2016	
Sample: MW012-E2		Sample Type: Sample				Received: 08/19/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2	Cooler 4
B	Vacutainer	6mL	16-0133	EDTA (PP)	Not Provided		Cooler 4
C	EXTRA_VOL	6mL	16-0133	EDTA (PP)	Not Provided		Cooler 4



## Sample Containers

<b>Lab ID:</b> 1634012-51		<b>Report Matrix:</b> Water			<b>Collected:</b> 08/18/2016	
<b>Sample:</b> B001R-E2		<b>Sample Type:</b> Sample			<b>Received:</b> 08/19/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2 Cooler 4

<b>Lab ID:</b> 1634012-52		<b>Report Matrix:</b> Water			<b>Collected:</b> 08/18/2016	
<b>Sample:</b> B001R-E2		<b>Sample Type:</b> Sample			<b>Received:</b> 08/19/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2 Cooler 4
B	Vacutainer	6mL	16-0133	EDTA (PP)	Not Provided	Cooler 4
C	EXTRA_VOL	6mL	16-0133	EDTA (PP)	Not Provided	Cooler 4

<b>Lab ID:</b> 1634012-53		<b>Report Matrix:</b> Water			<b>Collected:</b> 08/18/2016	
<b>Sample:</b> MW013-E2		<b>Sample Type:</b> Sample			<b>Received:</b> 08/19/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1%HNO3 (BAL)	1630022	<2 Cooler 4

<b>Lab ID:</b> 1634012-54		<b>Report Matrix:</b> Water			<b>Collected:</b> 08/18/2016	
<b>Sample:</b> MW013-E2		<b>Sample Type:</b> Sample			<b>Received:</b> 08/19/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1630022	<2 Cooler 4
B	Vacutainer	6mL	16-0133	EDTA (PP)	Not Provided	Cooler 4
C	EXTRA_VOL	6mL	16-0133	EDTA (PP)	Not Provided	Cooler 4



## Shipping Containers

### Cooler 1

**Received:** August 16, 2016 14:20  
**Tracking No:** None via Customer Drop-Off  
**Coolant Type:** Blue Ice  
**Temperature:** 8.7 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR #6

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 2

**Received:** August 18, 2016 12:20  
**Tracking No:** None via Customer Drop-Off  
**Coolant Type:** Blue Ice  
**Temperature:** 8.7 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR #6

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 3

**Received:** August 17, 2016 12:31  
**Tracking No:** None via Customer Drop-Off  
**Coolant Type:** Blue Ice  
**Temperature:** 7.4 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR #6

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 4

**Received:** August 19, 2016 12:05  
**Tracking No:** None via Customer Drop-Off  
**Coolant Type:** Blue Ice  
**Temperature:** 6.4 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR #6

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes



To Brooks

55 SW Yamhill St, Suite 300 Portland, Oregon 97204 503.239.8700	<h2 style="margin: 0;">Chain of Custody Record</h2>	Field Sampler(s): <u>SL</u>
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<b>Client Contact</b> Project Name: Parcel 15 - POT Project # or PO #: 603.002.012 Project Manager: Erin Hughes/Cindy Ryals Phone #: 971-200-8528 and 971-200-8531 Report to email: echughes@gsiws.com, cryals@gsiws.com Analysis Turnaround Time: Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater	<b>For Lab Use Only:</b> SDG: _____ Custody Seals intact? Hand delivered? Cooler Temp: _____ °C Therm ID No.: _____ Therm Exp. _____	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">Laboratory</th> </tr> <tr> <td style="width:50%; text-align: center;">TestAmerica</td> <td style="width:50%; text-align: center;">Brooks</td> </tr> <tr> <th colspan="2" style="text-align: center;">Analysis Requested</th> </tr> <tr> <td style="width:10%;">SM5310B: Total Organic Carbon</td> <td style="width:10%;"></td> </tr> <tr> <td>SM5310B: Dissolved Organic Carbon (field filtered)</td> <td></td> </tr> <tr> <td>SM4500 S 2D: Sulfide (dissolved; field filtered)</td> <td></td> </tr> <tr> <td>SM2540D: Total Suspended Solids (TSS)</td> <td></td> </tr> <tr> <td>6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*</td> <td></td> </tr> <tr> <td>300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**</td> <td></td> </tr> <tr> <td>300.0: Nitrate and Nitrite (dissolved; field filtered)</td> <td></td> </tr> <tr> <td>SM2320B: Alkalinity (field filtered)***</td> <td></td> </tr> <tr> <td>385.1: Major Anions (Orthophosphate; dissolved; field filtered)</td> <td></td> </tr> <tr> <td>6020A: Arsenic (total)</td> <td></td> </tr> <tr> <td>6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)</td> <td></td> </tr> <tr> <td>8260D SIM: Pentachlorophenol</td> <td></td> </tr> <tr> <td>1838M: Arsenic (total)</td> <td></td> </tr> <tr> <td>1838M: Arsenic, Iron, and Manganese (dissolved; field filtered)***</td> <td></td> </tr> <tr> <td>Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)</td> <td></td> </tr> </table>	Laboratory		TestAmerica	Brooks	Analysis Requested		SM5310B: Total Organic Carbon		SM5310B: Dissolved Organic Carbon (field filtered)		SM4500 S 2D: Sulfide (dissolved; field filtered)		SM2540D: Total Suspended Solids (TSS)		6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*		300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**		300.0: Nitrate and Nitrite (dissolved; field filtered)		SM2320B: Alkalinity (field filtered)***		385.1: Major Anions (Orthophosphate; dissolved; field filtered)		6020A: Arsenic (total)		6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)		8260D SIM: Pentachlorophenol		1838M: Arsenic (total)		1838M: Arsenic, Iron, and Manganese (dissolved; field filtered)***		Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	
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Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)																																						

**Lab PM**

Brooks- Ben Wozniak- 206-753-6158

TestAmerica - Christabel Escarez- 253.248.4975

Sample Identification	Sample Date	Sample Time	Field Conductivity (µS/cm)	Sample Type (C=Comp, W=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	385.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1838M: Arsenic (total)	1838M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
MW007-EZ	8/16	1405	2822	G	W	12	X	X	X	X	X	X	X	X					X	X	X	
MW007-EZ-BAT-2	8/16	1440	2822	G	W	2																Brooks
MW007-EZ-BAT-2	↓	↓	↓	↓	↓	2																Batch
MW007-EZ-BAT-3	↓	↓	↓	↓	↓	2																Samples
MW007-EZ-BAT-4	↓	↓	↓	↓	↓	2																
MW007-EZ-BAT-5	↓	↓	↓	↓	↓	2																
MW007-EZ-BAT-6	↓	↓	↓	↓	↓	2																

<b>Possible Hazard Identification:</b> Are samples hazardous? <input checked="" type="checkbox"/> No If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic Relinquished by: <u>[Signature]</u> Date/Time: 8/16/18 1545 Relinquished by: <u>[Signature]</u> Date/Time: 8/17/18 1231 Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____	<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b> <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year Received by: <u>B. Hill SEATA</u> Date/Time: 8.16.18 1600 Received by: <u>[Signature]</u> Date/Time: 8/17/18 1231 Received in Laboratory by: _____ Date/Time: _____
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**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

**GSI**  
 55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

### Chain of Custody Record

Field Sampler(s):  
GSI

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>		Brooks- Ben Wozniak- 206-753-6158
Project # or PO #: 603.002.012	Custody Seals intact?	<b>Analysis Requested</b>		
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	SM5310B: Total Organic Carbon SM5310B: Dissolved Organic Carbon (field filtered) SM4500 S 2D: Sulfide (dissolved; field filtered) SM2540D: Total Suspended Solids (TSS) 6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)* 310.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)** 310.0: Nitrate and Nitrite (dissolved; field filtered) SM2320B: Alkalinity (field filtered)*** 365.1: Major Anions (Orthophosphate; dissolved; field filtered) 6020A: Arsenic (total) 6020A: Arsenic, Iron, and Manganese (dissolved; field filtered) 6060D SIM: Pentachlorophenol 6038M: Arsenic (total) 6030M: Arsenic, Iron, and Manganese (dissolved; field filtered)*** Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)		TestAmerica - Christabel Escarez- 253.248.4975
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp : _____ °C			
Report to email: echughes@gsiws.com, cryals@gsiws.com	Therm ID No.: _____ Therm Exp. _____			
<b>Analysis Turnaround Time:</b> Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater				

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, S=Solid)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	310.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	310.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	6060D SIM: Pentachlorophenol	6038M: Arsenic (total)	6030M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
B-005R-EZ	8/11/16	1520	580.5	G	N	10	X	X	X							X	X	X	X	X		
B-505R-EZ		1600	580			8	X	X	X								X		X	X		
HCO02-EZ		1530	1216			12	X	X	X	X	X	X	X	X					X	X	X	
MW008-EZ		1745	2254			6	X	X	X										X	X		
MN010-EZ		1540	1367			13	X	X	X	X	X	X	X	X	X	X			X	X	X	
MN 510-EZ	↓	1600	1367	↓	↓	12	X	X	X	X	X	X	X	X					X	X	X	

<p><b>Possible Hazard Identification:</b>                  Are samples hazardous? <input checked="" type="checkbox"/> No                  If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic                  select hazard(s):                  Relinquished by: <i>Rince Foster</i> <span style="margin-left: 20px;">GSI</span> Date/Time: <i>8/10/16 0925</i>                  Relinquished by: <i>[Signature]</i> Date/Time: <i>8/19/16 1220</i>                  Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____</p>	<p>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year                  Received by: <i>B. Hill</i> SEATTA Date/Time: <i>8.18.16 0825</i>                  Received by: <i>[Signature]</i> Date/Time: <i>8/18/16 1220</i>                  Received in Laboratory by: _____ Date/Time: _____</p>
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**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

**GSI**  
 55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

Field Sampler(s): *SK*

### Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
<b>Project Name:</b> Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>		<b>Brooks</b>
<b>Project # or PO #:</b> 603.002.012	Custody Seals intact?	<b>Analysis Requested</b>		
<b>Project Manager:</b> Erin Hughes/Cindy Ryals	Hand delivered?	SM5310B: Total Organic Carbon SM5310B: Dissolved Organic Carbon (field filtered) SM4500 S 2D: Sulfide (dissolved; field filtered) SM2540D: Total Suspended Solids (TSS) 6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)* 300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)** 300.0: Nitrate and Nitrite (dissolved; field filtered) SM2320B: Alkalinity (field filtered)** 365.1: Major Anions (Orthophosphate; dissolved; field filtered) 6020A: Arsenic (total) 6020A: Arsenic, Iron, and Manganese (dissolved; field filtered) 8260D SIM: Pentachlorophenol 1638M: Arsenic (total) 1030M: Arsenic, Iron, and Manganese (dissolved; field filtered)*** Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)		Brooks - Ben Wozniak- 206-753-6158
<b>Phone #:</b> 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C			
<b>Report to email:</b> echughes@gslws.com, cryals@gslws.com	Therm ID No.: _____ Therm Exp. _____			
<b>Analysis Turnaround Time:</b> Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater				

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)**	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
MW009-EZ	8/16	1855	2315	G	W	12	X	X	X	X	X	X	X	X					X	X	Y	

<b>Possible Hazard Identification:</b>		<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>	
Are samples hazardous? <input checked="" type="checkbox"/> No		<input type="checkbox"/> Return to Client	<input checked="" type="checkbox"/> Disposal by Lab
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic		<input type="checkbox"/> Archive frozen for 1 year	
Relinquished by: <i>SK</i>	Date/Time: 8/17/16 1300	Received by: <i>B. Stell</i>	Date/Time: 8/17/16 1300
Relinquished by: <i>SK</i>	Date/Time: 8/18/16 1220	Received by: <i>Andrew Blair</i>	Date/Time: 8/18/16 1220
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other	Tracking #:	Received in Laboratory by:	Date/Time:

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

**GSI**  
 55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

## Chain of Custody Record

Field Sampler(s):  
GSI

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>	<b>Lab PM</b>
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>	Brooks- Ben Wozniak- 206-753-6158
Project # or PO #: 603.002.012	Custody Seals intact?	<b>Analysis Requested</b>	
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	SM5310B: Total Organic Carbon SM5310B: Dissolved Organic Carbon (field filtered) SM4500 S 2D: Sulfide (dissolved; field filtered) SM2540D: Total Suspended Solids (TSS) 6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)* 300.0: Major Anions (Br, Cl, F, SO <sub>4</sub> ; dissolved; field filtered)** 300.0: Nitrate and Nitrite (dissolved; field filtered) SM2320B: Alkalinity (field filtered)*** 365.1: Major Anions (Orthophosphate; dissolved; field filtered) 6020A: Arsenic (total) 6020A: Arsenic, Iron, and Manganese (dissolved; field filtered) 8260D SIM: Pentachlorophenol 1638M: Arsenic (total) 1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)*** Arsenic Speciation - As (III/As(V) (dissolved; field filtered)	TestAmerica - Christabel Escarez- 253.248.4975
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp : _____ °C		
Report to email: echughes@gslws.com, cryals@gslws.com	Therm ID No.: _____ Therm Exp. _____		
<b>Analysis Turnaround Time:</b> Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater			

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Analysis Requested													Sample Specific Notes							
							SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO <sub>4</sub> ; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)		1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III/As(V) (dissolved; field filtered)					
B003R-EZ	8/18/16	1010	4286	G	N		X	X	X	X																	
B006R-EZ	↓	1135	2367	↓	↓		X	X	X	X														X	X		
MW011-EZ	↓	1140	2118	↓	↓		X	X	X	X													X	X			
MW012-EZ	↓	955	2358	↓	↓		X	X	X	X	X	X	X	X									X	X	X		
B001R-EZ	↓	915	1538	↓	↓		X	X	X	X	X	X	X	X									X	X	X		
MW013-EZ	↓	1100	1231	↓	↓		X	X	X	X	X	X	X	X									X	X	X		

<p><b>Possible Hazard Identification:</b>                  Are samples hazardous? <input checked="" type="checkbox"/> No                  If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic                  select hazard(s):                  Relinquished by: <span style="font-family: cursive;">Vene [Signature]</span> GSI Date/Time: 8/18/16 1415                  Relinquished by: <span style="font-family: cursive;">[Signature]</span> Date/Time: 8/19/16 1140                  Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____</p>	<p>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year                  Received by: <span style="font-family: cursive;">B. Hall SEA TA</span> Date/Time: 8.18.16 1415                  Received by: <span style="font-family: cursive;">[Signature]</span> Date/Time: 8/19/16 1140                  Received in Laboratory by: _____ Date/Time: _____</p>
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**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO<sub>3</sub>, bicarbonate as CaCO<sub>3</sub>, and hydroxide as CaCO<sub>3</sub>.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • info@brooksapplied.com

October 6, 2016

GSI Water Solutions, Inc.  
ATTN: Cindy Ryals  
55 SW Yamhill St. Suite 300  
Portland OR 97204  
cryals@gsiws.com

RE: Project GSI-PR1601a Waters

Client Project: Parcel 15 – POT (603.002.012)

Dear Ms. Ryals,

On August 31, 2016 through September 2, 2016, Brooks Applied Labs (BAL) received nineteen (19) aqueous samples. The samples were logged-in for the analyses of dissolved arsenic (As), dissolved iron (Fe), dissolved manganese (Mn), total recoverable As, and As speciation according to the chain-of-custody (COC) forms. All samples requiring filtration were field-filtered by the client prior to reception at BAL. All samples were received and stored according to BAL SOPs and EPA methodology.

Dissolved As results were greater than the associated total As results for several client samples. Re-analyses were completed, confirming the initial analyses. The sample containers were examined and the client labels matched the BAL sample labels. The sample volumes present in the original containers were analyzed for total recoverable arsenic, confirming initial total recoverable arsenic results. Since all re-analyses confirmed initial results and there was no indication of a sample container label mix-up at BAL, results from the initial analyses were reported. The arsenic results are deemed representative of the supplied samples.

Instances where the matrix spike/matrix spike duplicate (MS/MSD) sets were spiked at a concentration less than 25% of the native sample result, the recoveries were not reported (**NR**) and the MSD RPD is not calculated (**NI/C**), as they are not valid indicators of data quality.

#### Dissolved Metals Quantitation by ICP-QQQ-MS

All aqueous samples for dissolved metals were directly analyzed for As, Fe, and Mn by inductively coupled plasma triple quadrupole mass spectrometry (ICP-QQQ-MS). The ICP-QQQ-MS determinative method uses advanced interference removal techniques to ensure accuracy of the sample results. For more information, please visit the *Interference Reduction Technology* section on our website, [brooksapplied.com](http://brooksapplied.com).

The arsenic and manganese results for the first method blank in batch B162197, identified as B162197-BLK1, are statistical outliers according to the Grubb's Test. All reported arsenic and manganese results from B162197 are either non-detects or greater than 10x the value of the associated Grubb's Outlier results. No qualification of data was necessary.

The method blanks in batch B162197 fail standard deviation criteria for iron due to high method blank value (B162197-BLK1). All iron results reported in batch B162197 are either non-detects or greater than 10x the highest blank result. No qualification of data was required.

Total Recoverable Metals Quantitation by ICP-QQQ-MS

All aqueous samples for total recoverable metals were digested on a hotblock apparatus with aliquots of with nitric and hydrochloric acids. The resulting digests were analyzed for As via ICP-QQQ-MS.

Arsenic Speciation by IC-ICP-CRC-MS

All aqueous samples for As speciation were analyzed using ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS). In accordance with the project agreement, As speciation was defined as dissolved arsenite [As(III)], arsenate [As(V)], monomethylarsonic acid [MMAs], and dimethylarsinic acid [DMAs]. Arsenic species are chromatographically separated on an ion exchange column and then quantified using inductively coupled plasma collision reaction cell mass spectrometry (ICP-CRC-MS); for more information on this determinative technique, please visit the *Interference Reduction Technology* section on our website.

All results were *not* method blank corrected, as described in the calculations section of the relevant BAL SOPs, and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

All data was reported without qualification, aside from concentration qualifiers. With the exception noted above, all associated quality control results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information, please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,



Jeremy Maute  
Project Manager  
Brooks Applied Labs, LLC  
jeremy@brooksapplied.com



## Report Information

### Laboratory Accreditation

BAL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BAL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksapplied.com/resources/certificates-permits/>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BAL</b>	Brooks Applied Labs	<b>MS</b>	matrix spike
<b>BLK</b>	method blank	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCB</b>	continuing calibration blank	<b>N/C</b>	not calculated
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>D</b>	dissolved fraction	<b>RPD</b>	relative percent difference
<b>DUP</b>	duplicate	<b>SCV</b>	secondary calibration verification
<b>IBL</b>	instrument blank	<b>SOP</b>	standard operating procedure
<b>ICV</b>	initial calibration verification	<b>SRM</b>	standard reference material
<b>MDL</b>	method detection limit	<b>T</b>	total fraction
<b>MRL</b>	method reporting limit	<b>TR</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>B</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Applied Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BAL.



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
WCTPW001A-10-E2	1636036-01	Water	Sample	08/30/2016	08/31/2016
WCTPW001A-10-E2	1636036-02	Water	Sample	08/30/2016	08/31/2016
WCTPW001A-40-E2	1636036-03	Water	Sample	08/30/2016	08/31/2016
WCTPW001A-40-E2	1636036-04	Water	Sample	08/30/2016	08/31/2016
WCTPW001B-10-E2	1636036-05	Water	Sample	08/30/2016	08/31/2016
WCTPW001B-10-E2	1636036-06	Water	Sample	08/30/2016	08/31/2016
WCTPW001B-40-E2	1636036-07	Water	Sample	08/30/2016	08/31/2016
WCTPW001B-40-E2	1636036-08	Water	Sample	08/30/2016	08/31/2016
WCTPW002A-10-E2	1636036-09	Water	Sample	08/30/2016	08/31/2016
WCTPW002A-10-E2	1636036-10	Water	Sample	08/30/2016	08/31/2016
WCTPW002A-40-E2	1636036-11	Water	Sample	08/30/2016	08/31/2016
WCTPW002A-40-E2	1636036-12	Water	Sample	08/30/2016	08/31/2016
WCTPW002B-10-E2	1636036-13	Water	Sample	08/30/2016	08/31/2016
WCTPW002B-10-E2	1636036-14	Water	Sample	08/30/2016	08/31/2016
WCTPW002B-40-E2	1636036-15	Water	Sample	08/30/2016	08/31/2016
WCTPW002B-40-E2	1636036-16	Water	Sample	08/30/2016	08/31/2016
WCTPW003A-40-E2	1636036-17	Water	Sample	08/30/2016	08/31/2016
WCTPW003A-40-E2	1636036-18	Water	Sample	08/30/2016	08/31/2016
WCTPW003B-10-E2	1636036-19	Water	Sample	08/30/2016	08/31/2016
WCTPW003B-10-E2	1636036-20	Water	Sample	08/30/2016	08/31/2016
WCTPW003B-40-E2	1636036-21	Water	Sample	08/30/2016	08/31/2016
WCTPW003B-40-E2	1636036-22	Water	Sample	08/30/2016	08/31/2016
WCTPW5MB-E2	1636036-23	Water	Field Blank	08/30/2016	08/31/2016
WCTPW5MB-E2	1636036-24	Water	Field Blank	08/30/2016	08/31/2016
MW006R-E2	1636036-25	Water	Sample	08/30/2016	08/31/2016
MW006R-E2	1636036-26	Water	Sample	08/30/2016	08/31/2016
MW005R-E2	1636036-27	Water	Sample	08/30/2016	08/31/2016
MW005R-E2	1636036-28	Water	Sample	08/30/2016	08/31/2016
WCTPW004B-40-E2	1636036-29	Water	Sample	08/31/2016	09/02/2016
WCTPW004B-40-E2	1636036-30	Water	Sample	08/31/2016	09/02/2016
WCTPW004B-10-E2	1636036-31	Water	Sample	08/31/2016	09/02/2016
WCTPW004B-10-E2	1636036-32	Water	Sample	08/31/2016	09/02/2016
WCTPW004A-40-E2	1636036-33	Water	Sample	08/31/2016	09/02/2016
WCTPW004A-40-E2	1636036-34	Water	Sample	08/31/2016	09/02/2016
WCTPW004A-10-E2	1636036-35	Water	Sample	08/31/2016	09/02/2016
WCTPW004A-10-E2	1636036-36	Water	Sample	08/31/2016	09/02/2016
WCTPW003A-10-E2	1636036-37	Water	Sample	08/31/2016	09/02/2016
WCTPW003A-10-E2	1636036-38	Water	Sample	08/31/2016	09/02/2016





## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
As	Water	EPA 1638 Mod	09/13/2016	09/17/2016	B162198	1601061
As	Water	EPA 1638 Mod	09/07/2016	09/08/2016	B162197	1601020
As	Water	EPA 1638 Mod	09/07/2016	09/14/2016	B162264	1601045
As	Water	EPA 1638 Mod	09/13/2016	09/14/2016	B162264	1601045
As(III)	Water	IC-ICP-MS	09/14/2016	09/15/2016	B162269	1601049
As(V)	Water	IC-ICP-MS	09/14/2016	09/15/2016	B162269	1601049
DMAs	Water	IC-ICP-MS	09/14/2016	09/15/2016	B162269	1601049
Fe	Water	EPA 1638 Mod	09/07/2016	09/08/2016	B162197	1601020
Fe	Water	EPA 1638 Mod	09/07/2016	09/14/2016	B162264	1601045
MMAAs	Water	IC-ICP-MS	09/14/2016	09/15/2016	B162269	1601049
Mn	Water	EPA 1638 Mod	09/07/2016	09/14/2016	B162264	1601045
Mn	Water	EPA 1638 Mod	09/07/2016	09/08/2016	B162197	1601020



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MW005R-E2</b>										
1636036-27	As	Water	TR	2.48		0.290	1.01	µg/L	B162198	1601061
1636036-28	As	Water	D	2.33		0.177	1.01	µg/L	B162264	1601045
1636036-28	Fe	Water	D	18400		7.07	21.5	µg/L	B162197	1601020
1636036-28	Mn	Water	D	198		0.530	1.59	µg/L	B162197	1601020
<b>MW006R-E2</b>										
1636036-25	As	Water	TR	1.28		0.290	1.01	µg/L	B162198	1601061
1636036-26	As	Water	D	1.20		0.177	1.01	µg/L	B162264	1601045
1636036-26	Fe	Water	D	45900		7.07	21.5	µg/L	B162197	1601020
1636036-26	Mn	Water	D	5560		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW001A-10-E2</b>										
1636036-01	As	Water	TR	40.8		0.290	1.01	µg/L	B162198	1601061
1636036-02	As	Water	D	1.97		0.177	1.01	µg/L	B162264	1601045
1636036-02	Fe	Water	D	1170		7.07	21.5	µg/L	B162264	1601045
1636036-02	Mn	Water	D	102		0.530	1.59	µg/L	B162264	1601045
<b>WCTPW001A-40-E2</b>										
1636036-03	As	Water	TR	17.2		0.290	1.01	µg/L	B162198	1601061
1636036-04	As	Water	D	19.5		0.177	1.01	µg/L	B162264	1601045
1636036-04	Fe	Water	D	25700		7.07	21.5	µg/L	B162197	1601020
1636036-04	Mn	Water	D	1850		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW001B-10-E2</b>										
1636036-05	As	Water	TR	56.2		0.290	1.01	µg/L	B162198	1601061
1636036-06	As	Water	D	71.4		0.177	1.01	µg/L	B162197	1601020
1636036-06	As(III)	Water	D	50.4		0.100	1.00	µg/L	B162269	1601049
1636036-06	As(V)	Water	D	23.8		0.100	1.00	µg/L	B162269	1601049
1636036-06	DMAs	Water	D	≤ 0.150	U	0.150	1.05	µg/L	B162269	1601049
1636036-06	Fe	Water	D	20800		7.07	21.5	µg/L	B162197	1601020
1636036-06	MMAs	Water	D	≤ 0.150	U	0.150	1.15	µg/L	B162269	1601049
1636036-06	Mn	Water	D	950		0.530	1.59	µg/L	B162197	1601020



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTPW001B-40-E2</b>										
1636036-07	As	Water	TR	80.1		0.290	1.01	µg/L	B162198	1601061
1636036-08	As	Water	D	119		0.177	1.01	µg/L	B162197	1601020
1636036-08	As(III)	Water	D	72.8		0.200	2.00	µg/L	B162269	1601049
1636036-08	As(V)	Water	D	45.8		0.200	2.00	µg/L	B162269	1601049
1636036-08	DMAs	Water	D	≤ 0.300	U	0.300	2.10	µg/L	B162269	1601049
1636036-08	Fe	Water	D	29100		7.07	21.5	µg/L	B162197	1601020
1636036-08	MMAAs	Water	D	≤ 0.300	U	0.300	2.30	µg/L	B162269	1601049
1636036-08	Mn	Water	D	1220		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW002A-10-E2</b>										
1636036-09	As	Water	TR	3.74		0.290	1.01	µg/L	B162198	1601061
1636036-10	As	Water	D	15.2		0.177	1.01	µg/L	B162197	1601020
1636036-10	Fe	Water	D	5340		7.07	21.5	µg/L	B162197	1601020
1636036-10	Mn	Water	D	971		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW002A-40-E2</b>										
1636036-11	As	Water	TR	5.22		0.290	1.01	µg/L	B162198	1601061
1636036-12	As	Water	D	7.21		0.177	1.01	µg/L	B162197	1601020
1636036-12	Fe	Water	D	18300		7.07	21.5	µg/L	B162197	1601020
1636036-12	Mn	Water	D	248		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW002B-10-E2</b>										
1636036-13	As	Water	TR	4.70		0.290	1.01	µg/L	B162198	1601061
1636036-14	As	Water	D	2.77		0.177	1.01	µg/L	B162264	1601045
1636036-14	Fe	Water	D	9920		7.07	21.5	µg/L	B162197	1601020
1636036-14	Mn	Water	D	126		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW002B-40-E2</b>										
1636036-15	As	Water	TR	6.50		0.290	1.01	µg/L	B162198	1601061
1636036-16	As	Water	D	10.1		0.177	1.01	µg/L	B162197	1601020
1636036-16	Fe	Water	D	25600		7.07	21.5	µg/L	B162197	1601020
1636036-16	Mn	Water	D	382		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW003A-10-E2</b>										
1636036-37	As	Water	TR	13.1		0.290	1.01	µg/L	B162198	1601061
1636036-38	As	Water	D	10.9		0.177	1.01	µg/L	B162197	1601020
1636036-38	Fe	Water	D	7340		7.07	21.5	µg/L	B162197	1601020
1636036-38	Mn	Water	D	321		0.530	1.59	µg/L	B162197	1601020



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTPW003A-40-E2</b>										
1636036-17	As	Water	TR	12.6		0.290	1.01	µg/L	B162198	1601061
1636036-18	As	Water	D	13.1		0.177	1.01	µg/L	B162197	1601020
1636036-18	Fe	Water	D	39200		7.07	21.5	µg/L	B162197	1601020
1636036-18	Mn	Water	D	4780		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW003B-10-E2</b>										
1636036-19	As	Water	TR	131		0.290	1.01	µg/L	B162198	1601061
1636036-20	As	Water	D	14.4		0.177	1.01	µg/L	B162197	1601020
1636036-20	Fe	Water	D	34900		7.07	21.5	µg/L	B162197	1601020
1636036-20	Mn	Water	D	3850		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW003B-40-E2</b>										
1636036-21	As	Water	TR	15.5		0.290	1.01	µg/L	B162198	1601061
1636036-22	As	Water	D	42.6		0.177	1.01	µg/L	B162197	1601020
1636036-22	As(III)	Water	D	31.6		0.100	1.00	µg/L	B162269	1601049
1636036-22	As(V)	Water	D	11.8		0.100	1.00	µg/L	B162269	1601049
1636036-22	DMAs	Water	D	≤ 0.150	U	0.150	1.05	µg/L	B162269	1601049
1636036-22	Fe	Water	D	17500		7.07	21.5	µg/L	B162197	1601020
1636036-22	MMAs	Water	D	≤ 0.150	U	0.150	1.15	µg/L	B162269	1601049
1636036-22	Mn	Water	D	1050		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW004A-10-E2</b>										
1636036-35	As	Water	TR	18.0		0.290	1.01	µg/L	B162198	1601061
1636036-36	As	Water	D	16.4		0.177	1.01	µg/L	B162197	1601020
1636036-36	Fe	Water	D	32300		7.07	21.5	µg/L	B162197	1601020
1636036-36	Mn	Water	D	1130		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW004A-40-E2</b>										
1636036-33	As	Water	TR	13.0		0.290	1.01	µg/L	B162198	1601061
1636036-34	As	Water	D	5.59		0.177	1.01	µg/L	B162197	1601020
1636036-34	Fe	Water	D	19500		7.07	21.5	µg/L	B162197	1601020
1636036-34	Mn	Water	D	1320		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW004B-10-E2</b>										
1636036-31	As	Water	TR	6.06		0.290	1.01	µg/L	B162198	1601061
1636036-32	As	Water	D	5.84		0.177	1.01	µg/L	B162197	1601020
1636036-32	Fe	Water	D	31000		7.07	21.5	µg/L	B162197	1601020
1636036-32	Mn	Water	D	1710		0.530	1.59	µg/L	B162197	1601020



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTPW004B-40-E2</b>										
1636036-29	As	Water	TR	13.0		0.290	1.01	µg/L	B162198	1601061
1636036-30	As	Water	D	12.4		0.177	1.01	µg/L	B162197	1601020
1636036-30	Fe	Water	D	13300		7.07	21.5	µg/L	B162197	1601020
1636036-30	Mn	Water	D	1100		0.530	1.59	µg/L	B162197	1601020
<b>WCTPW5MB-E2</b>										
1636036-23	As	Water	TR	≤ 0.290	U	0.290	1.01	µg/L	B162198	1601061
1636036-24	As	Water	D	≤ 0.007	U	0.007	0.040	µg/L	B162197	1601020
1636036-24	Fe	Water	D	≤ 0.28	U	0.28	0.86	µg/L	B162197	1601020
1636036-24	Mn	Water	D	≤ 0.021	U	0.021	0.064	µg/L	B162197	1601020



## Accuracy & Precision Summary

Batch: B162197  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B162197-SRM1</b>	<b>Certified Reference Material, (NC00370, T191 as SRM)</b>						
	As		4.080	3.948	µg/L	97% 75-125	
	Fe		83.00	78.30	µg/L	94% 75-125	
	Mn		27.00	25.59	µg/L	95% 75-125	
<b>B162197-DUP1</b>	<b>Duplicate, (1636036-02)</b>						
	As	1.910		1.790	µg/L		7% 20
	Fe	1042		1071	µg/L		3% 20
	Mn	87.84		90.61	µg/L		3% 20
<b>B162197-MS1</b>	<b>Matrix Spike, (1636036-02)</b>						
	As	1.910	252.5	284.6	µg/L	112% 75-125	
	Fe	1042	2525	3961	µg/L	116% 75-125	
	Mn	87.84	252.5	343.7	µg/L	101% 75-125	
<b>B162197-MSD1</b>	<b>Matrix Spike Duplicate, (1636036-02)</b>						
	As	1.910	252.5	290.9	µg/L	114% 75-125	2% 20
	Fe	1042	2525	3417	µg/L	94% 75-125	15% 20
	Mn	87.84	252.5	325.0	µg/L	94% 75-125	6% 20
<b>B162197-DUP2</b>	<b>Duplicate, (1636036-22)</b>						
	As	42.62		40.38	µg/L		5% 20
	Fe	17500		17120	µg/L		2% 20
	Mn	1048		1044	µg/L		0.4% 20
<b>B162197-MS2</b>	<b>Matrix Spike, (1636036-22)</b>						
	As	42.62	252.5	311.9	µg/L	107% 75-125	
	Fe	17500	2525	19880	µg/L	NR 75-125	
	Mn	1048	252.5	1275	µg/L	NR 75-125	
<b>B162197-MSD2</b>	<b>Matrix Spike Duplicate, (1636036-22)</b>						
	As	42.62	252.5	315.3	µg/L	108% 75-125	1% 20
	Fe	17500	2525	19550	µg/L	NR 75-125	N/C 20
	Mn	1048	252.5	1266	µg/L	NR 75-125	N/C 20



## Accuracy & Precision Summary

Batch: B162198  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B162198-BS1	Laboratory Fortified Blank, (1638026) As		200.0	198.9	µg/L	99% 75-125	
B162198-SRM1	Certified Reference Material, (NC00148, TMDA 70.2 Reference Standard - Bottle5) As		42.20	41.51	µg/L	98% 75-125	
B162198-DUP1	Duplicate, (1636036-07) As	80.07		73.38	µg/L		9% 20
B162198-MS1	Matrix Spike, (1636036-07) As	80.07	202.0	287.4	µg/L	103% 75-125	
B162198-MSD1	Matrix Spike Duplicate, (1636036-07) As	80.07	202.0	299.3	µg/L	109% 75-125	4% 20
B162198-DUP2	Duplicate, (1636036-17) As	12.55		11.83	µg/L		6% 20
B162198-MS2	Matrix Spike, (1636036-17) As	12.55	202.0	235.5	µg/L	110% 75-125	
B162198-MSD2	Matrix Spike Duplicate, (1636036-17) As	12.55	202.0	239.1	µg/L	112% 75-125	2% 20



## Accuracy & Precision Summary

Batch: B162264  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B162264-SRM1</b>	<b>Certified Reference Material, (NC00370, T191 as SRM)</b>						
	As		4.080	4.133	µg/L	101% 75-125	
	Fe		83.00	81.63	µg/L	98% 75-125	
	Mn		27.00	29.52	µg/L	109% 75-125	
<b>B162264-DUP1</b>	<b>Duplicate, (1636036-02)</b>						
	As	1.968		1.937	µg/L		2% 20
	Fe	1169		1130	µg/L		3% 20
	Mn	102.0		101.2	µg/L		0.8% 20
<b>B162264-MS1</b>	<b>Matrix Spike, (1636036-02)</b>						
	As	1.968	252.5	284.1	µg/L	112% 75-125	
	Fe	1169	2525	3287	µg/L	84% 75-125	
	Mn	102.0	252.5	334.9	µg/L	92% 75-125	
<b>B162264-MSD1</b>	<b>Matrix Spike Duplicate, (1636036-02)</b>						
	As	1.968	252.5	281.4	µg/L	111% 75-125	1% 20
	Fe	1169	2525	3541	µg/L	94% 75-125	7% 20
	Mn	102.0	252.5	362.6	µg/L	103% 75-125	8% 20





## Accuracy & Precision Summary

Batch: B162269  
 Lab Matrix: Water  
 Method: IC-ICP-MS

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B162269-BS1</b>	<b>Laboratory Fortified Blank, (NC00024)</b>						
	As(III)		5.000	5.172	µg/L	103% 75-125	
	As(V)		5.000	5.258	µg/L	105% 75-125	
	DMAs		3.198	3.316	µg/L	104% 75-125	
<b>B162269-BS2</b>	<b>Laboratory Fortified Blank, (1545039)</b>						
	MMA		5.270	4.626	µg/L	88% 75-125	
<b>B162269-DUP1</b>	<b>Duplicate, (1636036-22)</b>						
	As(III)	31.60		31.09	µg/L		2% 25
	As(V)	11.78		11.75	µg/L		0.3% 25
	DMAs	ND		ND	µg/L		N/C 25
	MMA	ND		ND	µg/L		N/C 25
<b>B162269-MS1</b>	<b>Matrix Spike, (1636036-22)</b>						
	As(III)	31.60	50.00	87.98	µg/L	113% 75-125	
	As(V)	11.78	50.00	68.90	µg/L	114% 75-125	
	DMAs	ND	52.10	59.50	µg/L	114% 75-125	
	MMA	ND	58.65	65.67	µg/L	112% 75-125	
<b>B162269-MSD1</b>	<b>Matrix Spike Duplicate, (1636036-22)</b>						
	As(III)	31.60	50.00	88.44	µg/L	114% 75-125	0.5% 25
	As(V)	11.78	50.00	69.72	µg/L	116% 75-125	1% 25
	DMAs	ND	52.10	59.93	µg/L	115% 75-125	0.7% 25
	MMA	ND	58.65	65.50	µg/L	112% 75-125	0.3% 25



## Method Blanks & Reporting Limits

**Batch:** B162197  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units			
B162197-BLK1	0.020*	µg/L			
B162197-BLK2	0.004	µg/L			
B162197-BLK3	0.002	µg/L			
B162197-BLK4	0.002	µg/L			
<b>Average:</b>	<b>0.003</b>		<b>Standard Deviation:</b>	<b>0.001</b>	<b>MDL:</b> 0.007
<b>Limit:</b>	<b>0.040</b>		<b>Limit:</b>	<b>0.007</b>	<b>MRL:</b> 0.040

**Analyte:** Fe

Sample	Result	Units			
B162197-BLK1	1.22	µg/L			
B162197-BLK2	0.14	µg/L			
B162197-BLK3	-0.32	µg/L			
B162197-BLK4	-0.26	µg/L			
<b>Average:</b>	<b>0.20</b>		<b>Standard Deviation:</b>	<b>0.71</b>	<b>MDL:</b> 0.28
<b>Limit:</b>	<b>0.85</b>		<b>Limit:</b>	<b>0.28</b>	<b>MRL:</b> 0.85

**Analyte:** Mn

Sample	Result	Units			
B162197-BLK1	0.052*	µg/L			
B162197-BLK2	0.006	µg/L			
B162197-BLK3	0.005	µg/L			
B162197-BLK4	-0.003	µg/L			
<b>Average:</b>	<b>0.003</b>		<b>Standard Deviation:</b>	<b>0.005</b>	<b>MDL:</b> 0.021
<b>Limit:</b>	<b>0.063</b>		<b>Limit:</b>	<b>0.021</b>	<b>MRL:</b> 0.063

\* Method blank result is identified as an outlier using the Grubbs Test and has been excluded from all calculations. See narrative.



## Method Blanks & Reporting Limits

**Batch:** B162198  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units		
B162198-BLK1	-0.0008	µg/L		
B162198-BLK2	0.014	µg/L		
B162198-BLK3	-0.005	µg/L		
B162198-BLK4	-0.004	µg/L		
<b>Average:</b>	0.001		<b>Standard Deviation:</b>	0.009
<b>Limit:</b>	0.080		<b>Limit:</b>	0.023
			<b>MDL:</b>	0.023
			<b>MRL:</b>	0.080



## Method Blanks & Reporting Limits

**Batch:** B162264  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units		
B162264-BLK1	0.003	µg/L		
B162264-BLK2	0.001	µg/L		
B162264-BLK3	0.003	µg/L		
B162264-BLK4	0.001	µg/L		
<b>Average:</b>	<b>0.002</b>		<b>Standard Deviation:</b>	<b>0.001</b>
<b>Limit:</b>	<b>0.040</b>		<b>Limit:</b>	<b>0.007</b>
			<b>MDL:</b>	<b>0.007</b>
			<b>MRL:</b>	<b>0.040</b>

**Analyte:** Fe

Sample	Result	Units		
B162264-BLK1	-0.23	µg/L		
B162264-BLK2	-0.02	µg/L		
B162264-BLK3	-0.34	µg/L		
B162264-BLK4	-0.20	µg/L		
<b>Average:</b>	<b>-0.20</b>		<b>Standard Deviation:</b>	<b>0.13</b>
<b>Limit:</b>	<b>0.85</b>		<b>Limit:</b>	<b>0.28</b>
			<b>MDL:</b>	<b>0.28</b>
			<b>MRL:</b>	<b>0.85</b>

**Analyte:** Mn

Sample	Result	Units		
B162264-BLK1	-0.014	µg/L		
B162264-BLK2	-0.007	µg/L		
B162264-BLK3	-0.012	µg/L		
B162264-BLK4	-0.015	µg/L		
<b>Average:</b>	<b>-0.012</b>		<b>Standard Deviation:</b>	<b>0.004</b>
<b>Limit:</b>	<b>0.063</b>		<b>Limit:</b>	<b>0.021</b>
			<b>MDL:</b>	<b>0.021</b>
			<b>MRL:</b>	<b>0.063</b>



## Method Blanks & Reporting Limits

**Batch:** B162269  
**Matrix:** Water  
**Method:** IC-ICP-MS  
**Analyte:** As(III)

Sample	Result	Units	
B162269-BLK1	0.00	µg/L	
B162269-BLK2	0.00	µg/L	
B162269-BLK3	0.00	µg/L	
B162269-BLK4	0.00	µg/L	
<b>Average:</b>	<b>0.000</b>		<b>MDL: 0.002</b>
<b>Limit:</b>	<b>0.020</b>		<b>MRL: 0.020</b>

**Analyte:** As(V)

Sample	Result	Units	
B162269-BLK1	0.002	µg/L	
B162269-BLK2	0.002	µg/L	
B162269-BLK3	0.002	µg/L	
B162269-BLK4	0.001	µg/L	
<b>Average:</b>	<b>0.002</b>		<b>MDL: 0.002</b>
<b>Limit:</b>	<b>0.020</b>		<b>MRL: 0.020</b>

**Analyte:** DMAs

Sample	Result	Units	
B162269-BLK1	0.00	µg/L	
B162269-BLK2	0.00	µg/L	
B162269-BLK3	0.00	µg/L	
B162269-BLK4	0.00	µg/L	
<b>Average:</b>	<b>0.000</b>		<b>MDL: 0.003</b>
<b>Limit:</b>	<b>0.021</b>		<b>MRL: 0.021</b>



## Method Blanks & Reporting Limits

**Analyte:** MMAs

<b>Sample</b>	<b>Result</b>	<b>Units</b>	
B162269-BLK1	0.00	µg/L	
B162269-BLK2	0.00	µg/L	
B162269-BLK3	0.00	µg/L	
B162269-BLK4	0.00	µg/L	
<b>Average:</b>	0.000		<b>MDL:</b> 0.003
<b>Limit:</b>	0.023		<b>MRL:</b> 0.023



## Sample Containers

<b>Lab ID:</b> 1636036-01	<b>Report Matrix:</b> Water	<b>Collected:</b> 08/30/2016
<b>Sample:</b> WCTPW001A-10-E2	<b>Sample Type:</b> Sample	<b>Received:</b> 08/31/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>
<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>
<b>Ship. Cont.</b>		
A Bottle HDPE ICP-W	125mL	16-0119
1% HNO3 (BAL)	1636009	<2
		Cooler

<b>Lab ID:</b> 1636036-02	<b>Report Matrix:</b> Water	<b>Collected:</b> 08/30/2016
<b>Sample:</b> WCTPW001A-10-E2	<b>Sample Type:</b> Sample	<b>Received:</b> 08/31/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>
<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>
<b>Ship. Cont.</b>		
A Bottle HDPE ICP-W	125mL	16-0119
1% HNO3 (BAL)	1636009	<2
		Cooler
B Vacutainer	6mL	16-0133
EDTA (manuf)	not provided	
		Cooler
C EXTRA_VOL	6mL	16-0133
EDTA (manuf)	not provided	
		Cooler

<b>Lab ID:</b> 1636036-03	<b>Report Matrix:</b> Water	<b>Collected:</b> 08/30/2016
<b>Sample:</b> WCTPW001A-40-E2	<b>Sample Type:</b> Sample	<b>Received:</b> 08/31/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>
<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>
<b>Ship. Cont.</b>		
A Bottle HDPE ICP-W	125mL	16-0119
1% HNO3 (BAL)	1636009	<2
		Cooler

<b>Lab ID:</b> 1636036-04	<b>Report Matrix:</b> Water	<b>Collected:</b> 08/30/2016
<b>Sample:</b> WCTPW001A-40-E2	<b>Sample Type:</b> Sample	<b>Received:</b> 08/31/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>
<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>
<b>Ship. Cont.</b>		
A Bottle HDPE ICP-W	125mL	16-0119
1% HNO3 (BAL)	1636009	<2
		Cooler
B Vacutainer	6mL	16-0133
EDTA (manuf)	not provided	
		Cooler
C EXTRA_VOL	6mL	16-0133
EDTA (manuf)	not provided	
		Cooler

<b>Lab ID:</b> 1636036-05	<b>Report Matrix:</b> Water	<b>Collected:</b> 08/30/2016
<b>Sample:</b> WCTPW001B-10-E2	<b>Sample Type:</b> Sample	<b>Received:</b> 08/31/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>
<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>
<b>Ship. Cont.</b>		
A Bottle HDPE ICP-W	125mL	16-0119
1% HNO3 (BAL)	1636009	<2
		Cooler



## Sample Containers

<b>Lab ID:</b> 1636036-06			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016		
<b>Sample:</b> WCTPW001B-10-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016		
	<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>	
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler	
B	Vacutainer	6mL	16-0133	EDTA (manuf)	not provided		Cooler	
C	EXTRA_VOL	6mL	16-0133	EDTA (manuf)	not provided		Cooler	

<b>Lab ID:</b> 1636036-07			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016		
<b>Sample:</b> WCTPW001B-40-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016		
	<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>	
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler	

<b>Lab ID:</b> 1636036-08			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016		
<b>Sample:</b> WCTPW001B-40-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016		
	<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>	
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler	
B	Vacutainer	6mL	16-0133	EDTA (manuf)	not provided		Cooler	
C	EXTRA_VOL	6mL	16-0133	EDTA (manuf)	not provided		Cooler	

<b>Lab ID:</b> 1636036-09			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016		
<b>Sample:</b> WCTPW002A-10-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016		
	<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>	
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler	





## Sample Containers

<b>Lab ID:</b> 1636036-10			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> WCTPW002A-10-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016	
	<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler
B	Vacutainer	6mL	16-0133	EDTA (manuf)	not provided		Cooler
C	EXTRA_VOL	6mL	16-0133	EDTA (manuf)	not provided		Cooler

<b>Lab ID:</b> 1636036-11			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> WCTPW002A-40-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016	
	<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler

<b>Lab ID:</b> 1636036-12			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> WCTPW002A-40-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016	
	<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler
B	Vacutainer	6mL	16-0133	EDTA (manuf)	not provided		Cooler
C	EXTRA_VOL	6mL	16-0133	EDTA (manuf)	not provided		Cooler

<b>Lab ID:</b> 1636036-13			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> WCTPW002B-10-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016	
	<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler



## Sample Containers

<b>Lab ID:</b> 1636036-14			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> WCTPW002B-10-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler
B	Vacutainer	6mL	16-0133	EDTA (manuf)	not provided		Cooler
C	EXTRA_VOL	6mL	16-0133	EDTA (manuf)	not provided		Cooler

<b>Lab ID:</b> 1636036-15			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> WCTPW002B-40-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler

<b>Lab ID:</b> 1636036-16			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> WCTPW002B-40-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler
B	Vacutainer	6mL	16-0133	EDTA (manuf)	not provided		Cooler
C	EXTRA_VOL	6mL	16-0133	EDTA (manuf)	not provided		Cooler

<b>Lab ID:</b> 1636036-17			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> WCTPW003A-40-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler



## Sample Containers

<b>Lab ID:</b> 1636036-18			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016		
<b>Sample:</b> WCTPW003A-40-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>	
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler	
B	Vacutainer	6mL	16-0133	EDTA (manuf)	not provided		Cooler	
C	EXTRA_VOL	6mL	16-0133	EDTA (manuf)	not provided		Cooler	

<b>Lab ID:</b> 1636036-19			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016		
<b>Sample:</b> WCTPW003B-10-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>	
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler	

<b>Lab ID:</b> 1636036-20			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016		
<b>Sample:</b> WCTPW003B-10-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>	
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler	
B	Vacutainer	6mL	16-0133	EDTA (manuf)	not provided		Cooler	
C	EXTRA_VOL	6mL	16-0133	EDTA (manuf)	not provided		Cooler	

<b>Lab ID:</b> 1636036-21			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016		
<b>Sample:</b> WCTPW003B-40-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>	
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler	



## Sample Containers

<b>Lab ID:</b> 1636036-22			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> WCTPW003B-40-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler
B	Vacutainer	6mL	16-0133	EDTA (manuf)	not provided		Cooler
C	EXTRA_VOL	6mL	16-0133	EDTA (manuf)	not provided		Cooler

<b>Lab ID:</b> 1636036-23			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> WCTPW5MB-E2			<b>Sample Type:</b> Field Blank			<b>Received:</b> 08/31/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler

<b>Lab ID:</b> 1636036-24			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> WCTPW5MB-E2			<b>Sample Type:</b> Field Blank			<b>Received:</b> 08/31/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler

<b>Lab ID:</b> 1636036-25			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> MW006R-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1636009	<2	Cooler

<b>Lab ID:</b> 1636036-26			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> MW006R-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1636009	<2	Cooler

<b>Lab ID:</b> 1636036-27			<b>Report Matrix:</b> Water			<b>Collected:</b> 08/30/2016	
<b>Sample:</b> MW005R-E2			<b>Sample Type:</b> Sample			<b>Received:</b> 08/31/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	250mL	16-0142	1% HNO3 (BAL)	1636009	<2	Cooler



## Sample Containers

<b>Lab ID:</b> 1636036-28 <b>Sample:</b> MW005R-E2			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 08/30/2016 <b>Received:</b> 08/31/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2 Cooler
<b>Lab ID:</b> 1636036-29 <b>Sample:</b> WCTPW004B-40-E2			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 08/31/2016 <b>Received:</b> 09/02/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2 Cooler 2
<b>Lab ID:</b> 1636036-30 <b>Sample:</b> WCTPW004B-40-E2			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 08/31/2016 <b>Received:</b> 09/02/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2 Cooler 2
<b>Lab ID:</b> 1636036-31 <b>Sample:</b> WCTPW004B-10-E2			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 08/31/2016 <b>Received:</b> 09/02/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2 Cooler 2
<b>Lab ID:</b> 1636036-32 <b>Sample:</b> WCTPW004B-10-E2			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 08/31/2016 <b>Received:</b> 09/02/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2 Cooler 2
<b>Lab ID:</b> 1636036-33 <b>Sample:</b> WCTPW004A-40-E2			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 08/31/2016 <b>Received:</b> 09/02/2016
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b> <b>Ship. Cont.</b>
A Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2 Cooler 2



## Sample Containers

<b>Lab ID:</b> 1636036-34		<b>Report Matrix:</b> Water		<b>Collected:</b> 08/31/2016			
<b>Sample:</b> WCTPW004A-40-E2		<b>Sample Type:</b> Sample		<b>Received:</b> 09/02/2016			
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler 2
<b>Lab ID:</b> 1636036-35		<b>Report Matrix:</b> Water		<b>Collected:</b> 08/31/2016			
<b>Sample:</b> WCTPW004A-10-E2		<b>Sample Type:</b> Sample		<b>Received:</b> 09/02/2016			
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler 2
<b>Lab ID:</b> 1636036-36		<b>Report Matrix:</b> Water		<b>Collected:</b> 08/31/2016			
<b>Sample:</b> WCTPW004A-10-E2		<b>Sample Type:</b> Sample		<b>Received:</b> 09/02/2016			
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler 2
<b>Lab ID:</b> 1636036-37		<b>Report Matrix:</b> Water		<b>Collected:</b> 08/31/2016			
<b>Sample:</b> WCTPW003A-10-E2		<b>Sample Type:</b> Sample		<b>Received:</b> 09/02/2016			
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler 2
<b>Lab ID:</b> 1636036-38		<b>Report Matrix:</b> Water		<b>Collected:</b> 08/31/2016			
<b>Sample:</b> WCTPW003A-10-E2		<b>Sample Type:</b> Sample		<b>Received:</b> 09/02/2016			
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0119	1% HNO3 (BAL)	1636009	<2	Cooler 2
B	Vacutainer	6mL	16-0133	EDTA (manuf)	not provided		Cooler 2
C	EXTRA_VOL	6mL	16-0133	EDTA (manuf)	not provided		Cooler 2

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1636036  
**Client PM:** Cindy Ryals  
**Client PO:** 603-002-012

## Shipping Containers

### Cooler

**Received:** August 31, 2016 12:45  
**Tracking No:** n/a via Customer Drop-Off  
**Coolant Type:** Blue Ice  
**Temperature:** -0.8 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR7

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 2

**Received:** September 2, 2016 13:40  
**Tracking No:** Client Drop-off via Customer Drop-Of  
**Coolant Type:** Blue Ice  
**Temperature:** 2.3 °C

**Description:** Cooler 2  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#7

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

GSI 55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

# Chain of Custody Record

Field Sampler(s):  
**GSI**

**Client Contact**  
Project Name: Parcel 15 - POT  
Project # or PO #: 603.002.012  
Project Manager: Erin Hughes/Cindy Ryals  
Phone #: 971-200-8528 and 971-200-8531  
Report to email: echughes@gsiws.com, cryals@gsiws.com

**For Lab Use Only:**  
SDG: \_\_\_\_\_  
Custody Seals intact? \_\_\_\_\_  
Hand delivered? \_\_\_\_\_  
Cooler Temp: \_\_\_\_\_ °C  
Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Laboratory**  
TestAmerica Brooks

**Lab PM**

**Analysis Turnaround Time:**  
Standard 21 day TAT on Most Analyses  
Rush 5 day on Dissolved Metals in Porewater

**Analysis Requested**

Brooks - Ben Wozniak - 206-753-6158

TestAmerica - Christabel Escarez - 253.248.4975

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	6020W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
WCTPN001A-10-EZ	8/30/15	1030	22658	G	W	12	X	X	X	X	X	X	X	X					X	X	X	
WCTPN001A-40-EZ		1000	10534																			
WCTPN001B-10-EZ		917	21617																			
WCTPN001B-40-EZ		900	13408																			
WCTPN002A-10-EZ		1230	32876																			
WCTPN002A-40-EZ		1150	24469																			
WCTPN002B-10-EZ		1130	28314																			
WCTPN002B-40-EZ		1115	19911																			
WCTPN003A-40-EZ		1315	NM																			
WCTPN003B-10-EZ		1300	21959																			
WCTPN003B-40-EZ		1245	2811																			
WCTPN5MB-EZ	8/30/16	1600	NM	G	W	01	X	X	X									X	X	X		

**Possible Hazard Identification:**  
Are samples hazardous?  No  
If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
select hazard(s):  
Relinquished by: *[Signature]* GSI Date/Time: 8/30/16 1605  
Relinquished by: *[Signature]* TASEH Date/Time: 8/31/16 1248  
Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #:

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
Received by: *[Signature]* SEATH Date/Time: 8-30-16 1605  
Received by: *[Signature]* Date/Time: 8/30/16 12:48  
Received in Laboratory by: Date/Time:

**Special Instructions/QC Requirements**  
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
Please contact Cindy Ryals at 971-200-8531 with any questions.

NM = not measured





55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

Field Sampler(s):  
**GSI**

<b>Client Contact</b>		<b>For Lab Use Only:</b>					<b>Laboratory</b>												<b>Lab PM</b>															
Project Name: Parcel 15 - POT		SDG: _____					<b>TestAmerica</b>						<b>Brooks</b>						Brooks - Ben Wozniak - 206-753-6158															
Project # or PO #: 603.002.012		Custody Seals intact?					<b>Analysis Requested</b>																											
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered?					SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	385.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	TestAmerica - Christabel Escarez - 253.248.4975												
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																																
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																																
<b>Analysis Turnaround Time:</b>																																		
Standard 21 day TAT on Most Analyses																																		
Rush 5 day on Dissolved Metals in Porewater																																		
Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	385.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes												
MW006R-E2	8/31/16	1640	756	G	H	7	X	X		X								X	X	X														
MW005R-E2	↓	1520	450	↓	↓	↓	X	X	X									X	X	X														

<b>Possible Hazard Identification:</b>				<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>							
Are samples hazardous? <input checked="" type="checkbox"/> No				<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year							
If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic				Received by: <b>B. Hall SEA TA</b> Date/Time: <b>8.31.16 08:15</b>							
select hazard(s):				Received by: <b>GA</b> Date/Time: <b>8/31/16 12:45</b>							
Relinquished by: <b>Erin Hughes</b> Date/Time: <b>8/31/16 8:15</b>				Received in Laboratory by:    Date/Time:							
Relinquished by: <b>TA-SEH</b> Date/Time: <b>8/31/16 1248</b>											
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other				Tracking #:							

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

# Chain of Custody Record

55 SW Yamhill St, Suite 300 Portland, Oregon 97204 503.239.8700		Field Sampler(s): <b>ECH, RF</b>
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<b>Client Contact</b> Project Name: Parcel 15 - POT Project # or PO #: 603.002.012 Project Manager: Erin Hughes/Cindy Ryals Phone #: 971-200-8528 and 971-200-8531 Report to email: echughes@gslws.com, cryals@gslws.com Analysis Turnaround Time: Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater	<b>For Lab Use Only:</b> SDG: _____ Custody Seals intact? Hand delivered? Cooler Temp: _____ °C Therm ID No.: _____ Therm Exp. _____	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">Laboratory</th> </tr> <tr> <td style="width: 50%; text-align: center;">TestAmerica</td> <td style="width: 50%; text-align: center;">Brooks</td> </tr> <tr> <th colspan="2" style="text-align: center;">Analysis Requested</th> </tr> <tr> <td style="font-size: 8px;">                     SM5310B: Total Organic Carbon                      SM5310B: Dissolved Organic Carbon (field filtered)                      SM4500 S 2D: Sulfide (dissolved; field filtered)                      SM2540D: Total Suspended Solids (TSS)                      6110C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*                      390.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**                      390.0: Nitrate and Nitrite (dissolved; field filtered)                      SM2320B: Alkalinity (field filtered)**                      395.1: Major Anions (Orthophosphate; dissolved; field filtered)                      6120A: Arsenic (total)                      6120A: Arsenic, Iron, and Manganese (dissolved; field filtered)                      6260D SIM: Pentachlorophenol                      338M: Arsenic (total)                      330M: Arsenic, Iron, and Manganese (dissolved; field filtered)***                      Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)                 </td> <td style="font-size: 8px; vertical-align: top;"> <b>Lab PM</b>                       Brooks - Ben Wozniak - 206-753-6158                       TestAmerica - Christabel Escarez - 253.248.4975                       Sample Specific Notes                 </td> </tr> </table>	Laboratory		TestAmerica	Brooks	Analysis Requested		SM5310B: Total Organic Carbon SM5310B: Dissolved Organic Carbon (field filtered) SM4500 S 2D: Sulfide (dissolved; field filtered) SM2540D: Total Suspended Solids (TSS) 6110C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)* 390.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)** 390.0: Nitrate and Nitrite (dissolved; field filtered) SM2320B: Alkalinity (field filtered)** 395.1: Major Anions (Orthophosphate; dissolved; field filtered) 6120A: Arsenic (total) 6120A: Arsenic, Iron, and Manganese (dissolved; field filtered) 6260D SIM: Pentachlorophenol 338M: Arsenic (total) 330M: Arsenic, Iron, and Manganese (dissolved; field filtered)*** Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	<b>Lab PM</b>  Brooks - Ben Wozniak - 206-753-6158  TestAmerica - Christabel Escarez - 253.248.4975  Sample Specific Notes
Laboratory										
TestAmerica	Brooks									
Analysis Requested										
SM5310B: Total Organic Carbon SM5310B: Dissolved Organic Carbon (field filtered) SM4500 S 2D: Sulfide (dissolved; field filtered) SM2540D: Total Suspended Solids (TSS) 6110C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)* 390.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)** 390.0: Nitrate and Nitrite (dissolved; field filtered) SM2320B: Alkalinity (field filtered)** 395.1: Major Anions (Orthophosphate; dissolved; field filtered) 6120A: Arsenic (total) 6120A: Arsenic, Iron, and Manganese (dissolved; field filtered) 6260D SIM: Pentachlorophenol 338M: Arsenic (total) 330M: Arsenic, Iron, and Manganese (dissolved; field filtered)*** Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	<b>Lab PM</b>  Brooks - Ben Wozniak - 206-753-6158  TestAmerica - Christabel Escarez - 253.248.4975  Sample Specific Notes									

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6110C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	390.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	390.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)**	395.1: Major Anions (Orthophosphate; dissolved; field filtered)	6120A: Arsenic (total)	6120A: Arsenic, Iron, and Manganese (dissolved; field filtered)	6260D SIM: Pentachlorophenol	338M: Arsenic (total)	330M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
WCTPW004B-40-E2	8/31	900	2933	G	PW	7	X	X	X									X	X	X		
WCTPW004B-10-E2	8/31	915	22425	G	PW	7	X	X	X									X	X	X		
WCTPW004A-40-E2	8/31	935	3412	G	PW	7	X	X	X									X	X	X		
WCTPW004A-10-E2	8/31	950	22,271	G	PW	7	X	X	X									X	X	X		
WCTPW003A-10-E2	8/31	1015	12,618	G	PW	12	X	X	X	X	X	X	X	X				X	R	*		R=Rush

\* = Do As Speciation if dissolved As is > 36 ug/L

<b>Possible Hazard Identification:</b> Are samples hazardous? <input checked="" type="checkbox"/> No If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic select hazard(s): Relinquished by: <u>Erin Hughes</u> Date/Time: <u>8/31/16 1206</u> Relinquished by: <u>[Signature]</u> Date/Time: <u>9/2/16 1135</u> Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____	<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b> <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year Received by: <u>B. Stahl SEATA</u> Date/Time: <u>8.31.16 1206</u> Received by: <u>[Signature]</u> Date/Time: _____ Received in Laboratory by: <u>[Signature]</u> Date/Time: <u>9/2/16 13:40</u>
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**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

# Chain of Custody Record

Field Sampler(s):  
**GSI**

Client Contact		For Lab Use Only:					Laboratory															Lab PM
Project Name: Parcel 15 - POT		SDG: _____					TestAmerica										Brooks					Brooks- Ben Wozniak- 206-753-6158
Project # or PO #: 603.002.012		Custody Seals intact?					Analysis Requested															
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered?																				TestAmerica - Christabel Escarez- 253.248.4975
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C																				
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____																				
Analysis Turnaround Time:																						Sample Specific Notes
Standard 21 day TAT on Most Analyses																						
Rush 5 day on Dissolved Metals in Porewater																						
Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM6310B: Total Organic Carbon	SM6310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)**	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)**	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	
WCTPNODIA-10-EZ	8/30/15	1030	22658	G	W	12	X	X	X	X	X	X	X	X	X					X	X	X
WCTPNODIA-40-EZ		1000	10534																			
WCTPN001B-10-EZ		917	21617																			
WCTPN001B-40-EZ		900	13408																			
WCTPN002A-10-EZ		1230	32876																			
WCTPN002A-40-EZ		1150	24469																			
WCTPN002B-10-EZ		1130	28314																			
WCTPN002B-40-EZ		1115	19911																			
WCTPN003A-40-EZ		1315	NM																			
WCTPN003B-10-EZ		1300	21959																			
WCTPN003B-40-EZ		1245	2811																			
WCTPN5MB-EZ	8/30/16	1600	NM	G	W	1	X	X	X									X	X	X		

**Possible Hazard Identification:**  
Are samples hazardous?  No  
If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
select hazard(s):

Relinquished by: *[Signature]* GSI Date/Time: 8/30/16 1605  
Relinquished by: *[Signature]* TASHA Date/Time: 8/31/16 1248  
Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

**Sample Disposal** (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive frozen for 1 year

Received by: *[Signature]* SEATH Date/Time: 8-30-16 1605  
Received by: *[Signature]* Date/Time: 8/30/16 12:45  
Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Special Instructions/QC Requirements**  
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
Please contact Cindy Ryals at 971-200-8531 with any questions.

NM = not measured



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

Field Sampler(s):  
**GSI**

## Chain of Custody Record

Client Contact		For Lab Use Only:					Laboratory										Lab PM					
<b>Project Name:</b> Parcel 15 - POT <b>Project # or PO #:</b> 603.002.012 <b>Project Manager:</b> Erin Hughes/Cindy Ryals <b>Phone #:</b> 971-200-8528 and 971-200-8531 <b>Report to email:</b> echughes@gsiws.com, cryals@gsiws.com		SDG: _____					TestAmerica					Brooks					Brooks- Ben Wozniak- 206-753-6158  TestAmerica - Christabel Escarez- 253.248.4975					
		Custody Seals intact?					Analysis Requested															
		Hand delivered?					SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)		6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1630M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)
<b>Analysis Turnaround Time:</b> Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater		Cooler Temp: _____ °C															Sample Specific Notes					
		Therm ID No.: _____ Therm Exp. _____																				
Sample Identification		Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.															
MN006R-EZ		8/31/16	1640	756	G	N	7	X	X		X							X	X	X		
MN005R-EZ		↓	1520	450	↓	↓	↓	X	X		X							X	X	X		

<b>Possible Hazard Identification:</b> Are samples hazardous? <input checked="" type="checkbox"/> No If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic select hazard(s): Relinquished by: <u>Erin Hughes</u> Date/Time: <u>8/31/16 8:15</u>			<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b> <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year Received by: <u>B. Hall SEATA</u> Date/Time: <u>8.31.16 0815</u>		
Relinquished by: <u>TA-SEA</u> Date/Time: <u>8/31/16 1248</u>			Received by: <u>SEA</u> Date/Time: <u>8/31/16 12:45</u>		
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____			Received in Laboratory by: _____ Date/Time: _____		

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

## Chain of Custody Record

Field Sampler(s):

ECH, RF

**Client Contact**  
 Project Name: Parcel 15 - POT  
 Project # or PO #: 603.002.012  
 Project Manager: Erin Hughes/Cindy Ryals  
 Phone #: 971-200-8528 and 971-200-8531  
 Report to email: echughes@gslws.com, cryals@gslws.com

**For Lab Use Only:**  
 SDG: \_\_\_  
 Custody Seals intact?  
 Hand delivered?  
 Cooler Temp: \_\_\_ °C  
 Therm ID No.: \_\_\_ Therm Exp. \_\_\_

**Analysis Turnaround Time:**  
 Standard 21 day TAT on Most Analyses  
 Rush 5 day on Dissolved Metals in Porewater

**Sample Identification**

Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.
8/31 9:00	9:00	2933	G	PW	7
8/31	9:15	22425	G	PW	7
8/31	9:35	3412	G	PW	7
8/31	9:50	22,271	G	PW	7
8/31	10:15	12,618	G	PW	12

Laboratory														
TestAmerica							Brooks							
Analysis Requested														
SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO <sub>4</sub> ; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)**	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)
X	X	X	X	X	X	X	X	X	X	X		X	X	X
											X	X	X	
											X	X	X	
											X	X	X	
											X	X	X	
											X	X	X	

**Lab PM**  
 Brooks - Ben Wozniak - 206-753-6158

TestAmerica - Christabel Escarez - 253.248.4975

**Sample Specific Notes**

R=Rush  
 \* = Do As Speciation if dissolved As is > 36 ug/L

**Possible Hazard Identification:**  
 Are samples hazardous?  No  
 If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
 Relinquished by: Erin Hughes Date/Time: 8/31/16 12:06  
 Relinquished by: [Signature] Date/Time: 9/2/16 11:35  
 Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

**Sample Disposal** (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
 Received by: B. Stell SE A TA Date/Time: 8.31.16 12:06  
 Received by: [Signature] Date/Time: \_\_\_\_\_  
 Received in Laboratory by: [Signature] Date/Time: 9/2/16 13:40

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO<sub>3</sub>, bicarbonate as CaCO<sub>3</sub>, and hydroxide as CaCO<sub>3</sub>.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-61729-1  
Client Project/Site: Parcel 15 - POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Cindy Ryals



Authorized for release by:  
8/25/2016 12:34:46 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Job ID: 580-61729-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-61729-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 8/16/2016 9:13 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 4.1° C, 5.7° C, 5.7° C and 5.9° C.

#### Receipt Exception

The client was contacted and cancelled SM4500 sulfide analysis for sample WCTSW004B-E2 (580-61729-4). A revised the chain of custody (COC) was received on 8/16/16.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

Method(s) 6010C: The method blank for preparation batch 580-225108 and analytical batch 580-225241 contained Calcium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 6020A: The method blank for preparation batch 580-225108 and analytical batch 580-225240 contained Iron above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

Method(s) SM 4500 S2 D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 280-338978 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: WCTSW001B-E2**

**Lab Sample ID: 580-61729-1**

**Date Collected: 08/15/16 10:15**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	42	B	1.1	0.023	mg/L		08/16/16 17:21	08/17/16 14:53	1
Magnesium	91		1.1	0.13	mg/L		08/16/16 17:21	08/17/16 14:53	1
Potassium	31		3.3	0.15	mg/L		08/16/16 17:21	08/17/16 14:53	1
Sodium	720		20	5.5	mg/L		08/16/16 17:21	08/18/16 11:27	10

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.5	J	5.0	1.4	ug/L		08/16/16 17:21	08/17/16 16:20	5

**Method: 6020A - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.8	J	5.0	1.4	ug/L		08/16/16 17:21	08/17/16 16:16	5
Iron	560	B	200	29	ug/L		08/16/16 17:21	08/17/16 16:16	5
Manganese	130		10	1.8	ug/L		08/16/16 17:21	08/17/16 16:16	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	4.1		1.0	0.19	mg/L			08/17/16 14:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	110		4.0	4.0	mg/L			08/17/16 09:15	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.24		0.20	0.030	mg/L			08/16/16 12:58	1
Nitrite as N	ND		0.40	0.080	mg/L			08/16/16 12:58	1
Chloride	1500		9.0	0.40	mg/L			08/16/16 16:02	10
Nitrate as N	1.7		0.20	0.020	mg/L			08/16/16 12:58	1
Bromide	4.5		0.50	0.060	mg/L			08/16/16 12:58	1
Sulfate	180		12	2.6	mg/L			08/16/16 16:02	10
Sulfide	ND		0.050	0.0070	mg/L			08/22/16 16:29	1
Dissolved Organic Carbon	3.1		1.0	0.19	mg/L			08/18/16 09:26	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/16/16 15:17	1
Alkalinity	140		5.0	5.0	mg/L			08/16/16 15:31	1
Bicarbonate Alkalinity as CaCO3	140		5.0	5.0	mg/L			08/16/16 15:31	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/16/16 15:31	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/16/16 15:31	1

TestAmerica Seattle

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: WCTSW002B-E2**

**Lab Sample ID: 580-61729-2**

**Date Collected: 08/15/16 10:30**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	38	B	1.1	0.023	mg/L		08/16/16 17:21	08/17/16 14:57	1
Magnesium	77		1.1	0.13	mg/L		08/16/16 17:21	08/17/16 14:57	1
Potassium	26		3.3	0.15	mg/L		08/16/16 17:21	08/17/16 14:57	1
Sodium	580		20	5.5	mg/L		08/16/16 17:21	08/18/16 11:31	10

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	3.8		1.0	0.19	mg/L			08/17/16 14:40	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	49		2.0	2.0	mg/L			08/17/16 09:15	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.19	J	0.20	0.030	mg/L			08/16/16 13:53	1
Nitrite as N	ND		0.40	0.080	mg/L			08/16/16 13:53	1
Chloride	1200		9.0	0.40	mg/L			08/16/16 16:21	10
Nitrate as N	1.8		0.20	0.020	mg/L			08/16/16 13:53	1
Bromide	3.8		0.50	0.060	mg/L			08/16/16 13:53	1
Sulfate	150		12	2.6	mg/L			08/16/16 16:21	10
Sulfide	ND		0.050	0.0070	mg/L			08/22/16 16:29	1
Dissolved Organic Carbon	3.7		1.0	0.19	mg/L			08/18/16 09:26	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/16/16 15:17	1
Alkalinity	130		5.0	5.0	mg/L			08/16/16 15:31	1
Bicarbonate Alkalinity as CaCO3	130		5.0	5.0	mg/L			08/16/16 15:31	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/16/16 15:31	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/16/16 15:31	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: WCTSW003B-E2**

**Lab Sample ID: 580-61729-3**

**Date Collected: 08/15/16 09:45**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	37	B	1.1	0.023	mg/L		08/16/16 17:21	08/17/16 15:00	1
Magnesium	74		1.1	0.13	mg/L		08/16/16 17:21	08/17/16 15:00	1
Potassium	25		3.3	0.15	mg/L		08/16/16 17:21	08/17/16 15:00	1
Sodium	570		20	5.5	mg/L		08/16/16 17:21	08/18/16 11:34	10

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	3.2		1.0	0.19	mg/L			08/17/16 14:40	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	37		2.0	2.0	mg/L			08/17/16 09:15	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.17	J	0.20	0.030	mg/L			08/16/16 14:12	1
Nitrite as N	ND		0.40	0.080	mg/L			08/16/16 14:12	1
Chloride	1100		9.0	0.40	mg/L			08/16/16 16:39	10
Nitrate as N	1.8		0.20	0.020	mg/L			08/16/16 14:12	1
Bromide	3.6		0.50	0.060	mg/L			08/16/16 14:12	1
Sulfate	140		12	2.6	mg/L			08/16/16 16:39	10
Sulfide	ND		0.050	0.0070	mg/L			08/22/16 16:29	1
Dissolved Organic Carbon	2.8		1.0	0.19	mg/L			08/18/16 09:26	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/16/16 15:17	1
Alkalinity	130		5.0	5.0	mg/L			08/16/16 15:32	1
Bicarbonate Alkalinity as CaCO3	130		5.0	5.0	mg/L			08/16/16 15:32	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/16/16 15:32	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/16/16 15:32	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: WCTSW004B-E2**

**Lab Sample ID: 580-61729-4**

**Date Collected: 08/15/16 11:45**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.063		0.022	0.015	ug/L		08/22/16 17:13	08/24/16 21:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	77		44 - 125				08/22/16 17:13	08/24/16 21:04	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	2.3		1.0	0.19	mg/L			08/17/16 14:40	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	15		2.0	2.0	mg/L			08/17/16 09:15	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.2		1.0	0.19	mg/L			08/18/16 09:26	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: WCTSW501B-E2**

**Lab Sample ID: 580-61729-5**

**Date Collected: 08/15/16 10:15**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	43	B	1.1	0.023	mg/L		08/16/16 17:21	08/17/16 15:04	1
Magnesium	93		1.1	0.13	mg/L		08/16/16 17:21	08/17/16 15:04	1
Potassium	32		3.3	0.15	mg/L		08/16/16 17:21	08/17/16 15:04	1
Sodium	720		20	5.5	mg/L		08/16/16 17:21	08/18/16 11:37	10

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	4.4		1.0	0.19	mg/L			08/17/16 14:40	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	110		2.0	2.0	mg/L			08/17/16 09:15	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.22		0.20	0.030	mg/L			08/16/16 14:30	1
Nitrite as N	ND		0.40	0.080	mg/L			08/16/16 14:30	1
Chloride	1500		9.0	0.40	mg/L			08/16/16 16:57	10
Nitrate as N	1.7		0.20	0.020	mg/L			08/16/16 14:30	1
Bromide	4.6		0.50	0.060	mg/L			08/16/16 14:30	1
Sulfate	180		12	2.6	mg/L			08/16/16 16:57	10
Sulfide	ND		0.050	0.0070	mg/L			08/22/16 16:29	1
Dissolved Organic Carbon	3.3		1.0	0.19	mg/L			08/18/16 09:26	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/16/16 15:17	1
Alkalinity	130		5.0	5.0	mg/L			08/16/16 15:31	1
Bicarbonate Alkalinity as CaCO3	130		5.0	5.0	mg/L			08/16/16 15:31	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/16/16 15:31	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/16/16 15:31	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: BWSW001-E2**

**Lab Sample ID: 580-61729-6**

**Date Collected: 08/15/16 13:30**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	260	B	1.1	0.023	mg/L		08/16/16 17:21	08/17/16 15:07	1
Magnesium	790		1.1	0.13	mg/L		08/16/16 17:21	08/17/16 15:07	1
Potassium	250		3.3	0.15	mg/L		08/16/16 17:21	08/17/16 15:07	1
Sodium	6200		100	28	mg/L		08/16/16 17:21	08/18/16 11:40	50

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	5.2		1.0	0.19	mg/L			08/17/16 14:40	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	19		2.0	2.0	mg/L			08/17/16 09:15	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1.9	J	2.0	0.30	mg/L			08/16/16 17:16	10
Nitrite as N	ND		0.40	0.080	mg/L			08/16/16 14:49	1
Chloride	13000		450	20	mg/L			08/17/16 09:18	500
Nitrate as N	7.8		0.20	0.020	mg/L			08/16/16 14:49	1
Bromide	45		5.0	0.60	mg/L			08/16/16 17:16	10
Sulfate	3200		120	26	mg/L			08/16/16 22:47	100
Sulfide	ND		0.050	0.0070	mg/L			08/22/16 16:29	1
Dissolved Organic Carbon	2.4		1.0	0.19	mg/L			08/18/16 09:26	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/16/16 15:18	1
Alkalinity	86		5.0	5.0	mg/L			08/16/16 15:31	1
Bicarbonate Alkalinity as CaCO3	86		5.0	5.0	mg/L			08/16/16 15:31	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/16/16 15:31	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/16/16 15:31	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: USSW001-E2**

**Lab Sample ID: 580-61729-7**

**Date Collected: 08/15/16 13:30**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	23	B	1.1	0.023	mg/L		08/16/16 17:21	08/17/16 15:11	1
Magnesium	13		1.1	0.13	mg/L		08/16/16 17:21	08/17/16 15:11	1
Potassium	2.7	J	3.3	0.15	mg/L		08/16/16 17:21	08/17/16 15:11	1
Sodium	9.6		2.0	0.55	mg/L		08/16/16 17:21	08/18/16 11:44	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	2.2		1.0	0.19	mg/L			08/17/16 14:40	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	2.0		2.0	2.0	mg/L			08/17/16 09:15	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			08/16/16 15:07	1
Nitrite as N	ND		0.40	0.080	mg/L			08/16/16 15:07	1
Chloride	32		0.90	0.040	mg/L			08/16/16 15:07	1
Nitrate as N	2.1		0.20	0.020	mg/L			08/16/16 15:07	1
Bromide	ND		0.50	0.060	mg/L			08/16/16 15:07	1
Sulfate	14		1.2	0.26	mg/L			08/16/16 15:07	1
Sulfide	ND		0.050	0.0070	mg/L			08/22/16 16:29	1
Dissolved Organic Carbon	1.9		1.0	0.19	mg/L			08/18/16 09:26	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/16/16 15:18	1
Alkalinity	96		5.0	5.0	mg/L			08/16/16 15:31	1
Bicarbonate Alkalinity as CaCO3	96		5.0	5.0	mg/L			08/16/16 15:31	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/16/16 15:31	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/16/16 15:31	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: OF2-E2**  
**Date Collected: 08/15/16 11:30**  
**Date Received: 08/16/16 09:13**

**Lab Sample ID: 580-61729-8**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>12</b>		2.0	0.38	mg/L			08/17/16 14:40	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>21</b>		2.0	2.0	mg/L			08/17/16 09:15	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Dissolved Organic Carbon</b>	<b>8.3</b>		1.0	0.19	mg/L			08/18/16 09:26	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: OF3-E2**  
**Date Collected: 08/15/16 11:40**  
**Date Received: 08/16/16 09:13**

**Lab Sample ID: 580-61729-9**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>18</b>		2.0	0.38	mg/L			08/17/16 14:40	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>39</b>		2.0	2.0	mg/L			08/17/16 09:15	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Dissolved Organic Carbon</b>	<b>19</b>		10	1.9	mg/L			08/18/16 09:26	10



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: MW002R-E2**

**Lab Sample ID: 580-61729-10**

**Date Collected: 08/15/16 16:00**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	22		0.021	0.014	ug/L		08/22/16 17:13	08/24/16 21:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	90		44 - 125				08/22/16 17:13	08/24/16 21:26	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	12		10	1.9	mg/L			08/19/16 18:14	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			08/17/16 09:15	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	12		10	1.9	mg/L			08/18/16 09:26	10

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: MW003-E2**

**Lab Sample ID: 580-61729-11**

**Date Collected: 08/15/16 15:00**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.067		0.020	0.014	ug/L		08/22/16 17:13	08/24/16 21:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	91		44 - 125				08/22/16 17:13	08/24/16 21:49	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	31		20	3.8	mg/L			08/19/16 18:14	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	100		6.7	6.7	mg/L			08/17/16 09:15	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	31		2.0	0.38	mg/L			08/19/16 14:48	2

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: MW001-E2**

**Lab Sample ID: 580-61729-12**

**Date Collected: 08/15/16 16:45**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.084		0.020	0.014	ug/L		08/22/16 17:13	08/24/16 22:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	91		44 - 125				08/22/16 17:13	08/24/16 22:12	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	49		20	3.8	mg/L			08/19/16 18:14	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	130		6.7	6.7	mg/L			08/17/16 09:15	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	51		10	1.9	mg/L			08/19/16 14:49	10

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: MW004-E2**

**Lab Sample ID: 580-61729-13**

**Date Collected: 08/15/16 18:20**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.057		0.020	0.013	ug/L		08/22/16 17:13	08/24/16 22:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	89		44 - 125				08/22/16 17:13	08/24/16 22:34	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	8.8		1.0	0.19	mg/L			08/19/16 18:14	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	39		4.0	4.0	mg/L			08/17/16 09:15	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	11		1.0	0.19	mg/L			08/19/16 14:48	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-225586/1-A**  
**Matrix: Water**  
**Analysis Batch: 225813**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 225586**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.020	0.014	ug/L		08/22/16 17:13	08/24/16 16:32	1
Surrogate	%Recovery	MB Qualifier	Limits						
2,4,6-Tribromophenol	83		44 - 125						
							Prepared	Analyzed	Dil Fac
							08/22/16 17:13	08/24/16 16:32	1

**Lab Sample ID: LCS 580-225586/2-A**  
**Matrix: Water**  
**Analysis Batch: 225813**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 225586**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Pentachlorophenol	8.00	6.80		ug/L		85	20 - 134		
Surrogate	%Recovery	LCS Qualifier	Limits						
2,4,6-Tribromophenol	86		44 - 125						

**Lab Sample ID: LCSD 580-225586/3-A**  
**Matrix: Water**  
**Analysis Batch: 225813**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 225586**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	8.00	7.40		ug/L		92	20 - 134	8	35
Surrogate	%Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	88		44 - 125						

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-225108/17-A**  
**Matrix: Water**  
**Analysis Batch: 225241**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225108**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.0251	J	1.1	0.023	mg/L		08/16/16 17:21	08/17/16 13:51	1
Magnesium	ND		1.1	0.13	mg/L		08/16/16 17:21	08/17/16 13:51	1
Potassium	ND		3.3	0.15	mg/L		08/16/16 17:21	08/17/16 13:51	1
Sodium	ND		2.0	0.55	mg/L		08/16/16 17:21	08/17/16 13:51	1

**Lab Sample ID: LCS 580-225108/18-A**  
**Matrix: Water**  
**Analysis Batch: 225241**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225108**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Calcium	20.0	22.4		mg/L		112	80 - 120		
Magnesium	20.0	21.2		mg/L		106	80 - 120		
Potassium	20.0	21.3		mg/L		107	80 - 120		
Sodium	20.0	22.3		mg/L		112	80 - 120		

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

## Method: 6010C - Metals (ICP) (Continued)

**Lab Sample ID: LCSD 580-225108/19-A**

**Matrix: Water**

**Analysis Batch: 225241**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total Recoverable**

**Prep Batch: 225108**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Calcium	20.0	22.2		mg/L		111	80 - 120	1	20
Magnesium	20.0	20.9		mg/L		104	80 - 120	2	20
Potassium	20.0	20.9		mg/L		105	80 - 120	2	20
Sodium	20.0	22.1		mg/L		111	80 - 120	1	20

**Lab Sample ID: LCSSRM 580-225108/20-A**

**Matrix: Water**

**Analysis Batch: 225241**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total Recoverable**

**Prep Batch: 225108**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Calcium	20.0	22.5		mg/L		112	80 - 120		
Magnesium	20.0	21.0		mg/L		105	80 - 120		
Potassium	20.0	20.9		mg/L		104	80 - 120		
Sodium	20.0	22.1		mg/L		111	80 - 120		

**Lab Sample ID: 580-61744-E-1-C MS**

**Matrix: Water**

**Analysis Batch: 225241**

**Client Sample ID: Matrix Spike**

**Prep Type: Dissolved**

**Prep Batch: 225108**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Calcium	24	B	20.0	45.4		mg/L		108	75 - 125		
Magnesium	8.3		20.0	28.5		mg/L		101	75 - 125		
Potassium	6.6		20.0	27.0		mg/L		102	75 - 125		
Sodium	32		20.0	53.9		mg/L		109	75 - 125		

**Lab Sample ID: 580-61744-E-1-D MSD**

**Matrix: Water**

**Analysis Batch: 225241**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Dissolved**

**Prep Batch: 225108**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Calcium	24	B	20.0	46.1		mg/L		112	75 - 125	1	20
Magnesium	8.3		20.0	29.2		mg/L		104	75 - 125	2	20
Potassium	6.6		20.0	27.5		mg/L		105	75 - 125	2	20
Sodium	32		20.0	54.4		mg/L		111	75 - 125	1	20

**Lab Sample ID: 580-61744-E-1-B DU**

**Matrix: Water**

**Analysis Batch: 225241**

**Client Sample ID: Duplicate**

**Prep Type: Dissolved**

**Prep Batch: 225108**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	24	B	23.3		mg/L		2	20
Magnesium	8.3		8.21		mg/L		2	20
Potassium	6.6		6.41		mg/L		3	20
Sodium	32		31.4		mg/L		3	20

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 580-225108/17-A**  
**Matrix: Water**  
**Analysis Batch: 225240**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225108**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	1.4	ug/L		08/16/16 17:21	08/17/16 15:18	5
Iron	51.7	J	200	29	ug/L		08/16/16 17:21	08/17/16 15:18	5
Manganese	ND		10	1.8	ug/L		08/16/16 17:21	08/17/16 15:18	5

**Lab Sample ID: LCS 580-225108/18-A**  
**Matrix: Water**  
**Analysis Batch: 225240**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225108**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4000	4110		ug/L		103	80 - 120
Iron	22000	24100		ug/L		109	80 - 120
Manganese	1000	1030		ug/L		103	80 - 120

**Lab Sample ID: LCSD 580-225108/19-A**  
**Matrix: Water**  
**Analysis Batch: 225240**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225108**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Arsenic	4000	4060		ug/L		102	80 - 120	1	20
Iron	22000	24000		ug/L		109	80 - 120	0	20
Manganese	1000	1020		ug/L		102	80 - 120	1	20

**Lab Sample ID: LCSSRM 580-225108/20-A**  
**Matrix: Water**  
**Analysis Batch: 225240**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225108**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4000	4150		ug/L		104	80 - 120
Iron	22000	24500		ug/L		111	80 - 120
Manganese	1000	1070		ug/L		107	80 - 120

**Lab Sample ID: 580-61744-E-1-C MS**  
**Matrix: Water**  
**Analysis Batch: 225240**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225108**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.3	J	4000	4110		ug/L		103	80 - 120
Iron	1200	B	22000	25100		ug/L		109	80 - 120
Manganese	87		1000	1130		ug/L		104	80 - 120

**Lab Sample ID: 580-61744-E-1-D MSD**  
**Matrix: Water**  
**Analysis Batch: 225240**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225108**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Arsenic	2.3	J	4000	4010		ug/L		100	80 - 120	2	20
Iron	1200	B	22000	24300		ug/L		105	80 - 120	3	20
Manganese	87		1000	1060		ug/L		97	80 - 120	6	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

## Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 580-61744-E-1-B DU  
Matrix: Water  
Analysis Batch: 225240

Client Sample ID: Duplicate  
Prep Type: Total Recoverable  
Prep Batch: 225108

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Arsenic	2.3	J	2.51	J	ug/L		8	20
Iron	1200	B	1220		ug/L		3	20
Manganese	87		90.3		ug/L		4	20

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-225162/3  
Matrix: Water  
Analysis Batch: 225162

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrite as N	ND		0.40	0.080	mg/L			08/16/16 10:42	1
Nitrate as N	ND		0.20	0.020	mg/L			08/16/16 10:42	1

Lab Sample ID: LCS 580-225162/4  
Matrix: Water  
Analysis Batch: 225162

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5.00	4.99		mg/L		100	90 - 110

Lab Sample ID: LCSD 580-225162/5  
Matrix: Water  
Analysis Batch: 225162

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Nitrate as N	5.00	5.00		mg/L		100	90 - 110	0	15

Lab Sample ID: MB 580-225164/3  
Matrix: Water  
Analysis Batch: 225164

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Fluoride	ND		0.20	0.030	mg/L			08/16/16 10:42	1
Chloride	ND		0.90	0.040	mg/L			08/16/16 10:42	1
Bromide	ND		0.50	0.060	mg/L			08/16/16 10:42	1
Sulfate	ND		1.2	0.26	mg/L			08/16/16 10:42	1

Lab Sample ID: LCS 580-225164/4  
Matrix: Water  
Analysis Batch: 225164

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	52.0		mg/L		104	90 - 110
Bromide	5.00	5.08		mg/L		102	90 - 110
Sulfate	50.0	49.6		mg/L		99	90 - 110

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

Lab Sample ID: LCSD 580-225164/5  
Matrix: Water  
Analysis Batch: 225164

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	5.02		mg/L		100	90 - 110	0	15
Chloride	50.0	52.2		mg/L		104	90 - 110	0	15
Bromide	5.00	5.11		mg/L		102	90 - 110	1	15
Sulfate	50.0	49.7		mg/L		99	90 - 110	0	15

Lab Sample ID: 580-61729-1 MS  
Matrix: Water  
Analysis Batch: 225162

Client Sample ID: WCTSW001B-E2  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	ND		5.00	4.60		mg/L		92	90 - 110		
Nitrate as N	1.7		5.00	6.92		mg/L		104	90 - 110		

Lab Sample ID: 580-61729-1 MSD  
Matrix: Water  
Analysis Batch: 225162

Client Sample ID: WCTSW001B-E2  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	ND		5.00	4.67		mg/L		93	90 - 110	2	15
Nitrate as N	1.7		5.00	7.03		mg/L		106	90 - 110	2	15

Lab Sample ID: 580-61729-1 MS  
Matrix: Water  
Analysis Batch: 225164

Client Sample ID: WCTSW001B-E2  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.24		5.00	4.91		mg/L		93	90 - 110		
Chloride	1700		50.0	1650	4	mg/L		-30	90 - 110		
Bromide	4.5		5.00	9.68		mg/L		103	90 - 110		
Sulfate	200		50.0	252		mg/L		107	90 - 110		

Lab Sample ID: 580-61729-1 MSD  
Matrix: Water  
Analysis Batch: 225164

Client Sample ID: WCTSW001B-E2  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.24		5.00	5.01		mg/L		95	90 - 110	2	15
Chloride	1700		50.0	1660	4	mg/L		-23	90 - 110	0	15
Bromide	4.5		5.00	9.79		mg/L		105	90 - 110	1	15
Sulfate	200		50.0	254		mg/L		110	90 - 110	0	15

## Method: 365.1 - Phosphorus, Ortho

Lab Sample ID: MB 580-225086/1  
Matrix: Water  
Analysis Batch: 225086

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10 mg/L			08/16/16 15:17	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

## Method: 365.1 - Phosphorus, Ortho (Continued)

**Lab Sample ID: LCS 580-225086/2**  
**Matrix: Water**  
**Analysis Batch: 225086**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.97		mg/L		99	90 - 110

**Lab Sample ID: 580-61729-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225086**

**Client Sample ID: WCTSW001B-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	ND		2.00	1.96		mg/L		98	80 - 120

**Lab Sample ID: 580-61729-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225086**

**Client Sample ID: WCTSW001B-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	ND		2.00	1.98		mg/L		99	80 - 120	1	20

**Lab Sample ID: 580-61729-1 DU**  
**Matrix: Water**  
**Analysis Batch: 225086**

**Client Sample ID: WCTSW001B-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
ortho-Phosphate	ND		ND		mg/L		NC	20

## Method: SM 2320B - Alkalinity

**Lab Sample ID: LCS 580-225087/2**  
**Matrix: Water**  
**Analysis Batch: 225087**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	103		mg/L		103	85 - 115

**Lab Sample ID: 580-61729-1 DU**  
**Matrix: Water**  
**Analysis Batch: 225087**

**Client Sample ID: WCTSW001B-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	140		156		mg/L		14	17
Bicarbonate Alkalinity as CaCO3	140		156		mg/L		14	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Hydroxide Alkalinity as CaCO3	ND		ND		mg/L		NC	20

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 580-225142/1**  
**Matrix: Water**  
**Analysis Batch: 225142**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			08/17/16 09:15	1

**Lab Sample ID: LCS 580-225142/2**  
**Matrix: Water**  
**Analysis Batch: 225142**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	30.0	27.6		mg/L		92	70.6 - 120

**Lab Sample ID: 580-61729-10 DU**  
**Matrix: Water**  
**Analysis Batch: 225142**

**Client Sample ID: MW002R-E2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	ND		ND		mg/L		NC	20

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID: MB 280-338978/4**  
**Matrix: Water**  
**Analysis Batch: 338978**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			08/22/16 16:14	1

**Lab Sample ID: LCS 280-338978/3**  
**Matrix: Water**  
**Analysis Batch: 338978**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.442	0.450		mg/L		102	80 - 119

**Lab Sample ID: 280-87017-Q-1 MS**  
**Matrix: Water**  
**Analysis Batch: 338978**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND	F1	0.442	0.161	F1	mg/L		37	80 - 119

**Lab Sample ID: 280-87017-Q-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 338978**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND	F1	0.442	0.167	F1	mg/L		38	80 - 119	4	10

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-225222/1**  
**Matrix: Water**  
**Analysis Batch: 225222**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			08/17/16 14:40	1

**Lab Sample ID: LCS 580-225222/2**  
**Matrix: Water**  
**Analysis Batch: 225222**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	10.2		mg/L		102	85 - 115

**Lab Sample ID: 580-61700-F-5 MS**  
**Matrix: Water**  
**Analysis Batch: 225222**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	68		200	277		mg/L		104	85 - 115

**Lab Sample ID: 580-61700-F-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 225222**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	68		200	277		mg/L		105	85 - 115	0	20

**Lab Sample ID: 580-61700-F-5 DU**  
**Matrix: Water**  
**Analysis Batch: 225222**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	68		69.0		mg/L		1	20

**Lab Sample ID: MB 580-225621/1**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			08/19/16 18:14	1

**Lab Sample ID: LCS 580-225621/2**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.85		mg/L		99	85 - 115

**Lab Sample ID: 580-61730-D-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	140		200	349		mg/L		105	85 - 115

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Lab Sample ID: 580-61730-D-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	140		200	346		mg/L		104	85 - 115	1	20

**Lab Sample ID: 580-61730-D-1 DU**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	140		139		mg/L		0.3	20

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-225363/1**  
**Matrix: Water**  
**Analysis Batch: 225363**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			08/18/16 09:26	1

**Lab Sample ID: LCS 580-225363/2**  
**Matrix: Water**  
**Analysis Batch: 225363**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.6		mg/L		106	85 - 115

**Lab Sample ID: 580-61729-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225363**

**Client Sample ID: WCTSW001B-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	3.1		10.0	14.4		mg/L		113	85 - 115

**Lab Sample ID: 580-61729-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225363**

**Client Sample ID: WCTSW001B-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	3.1		10.0	14.4		mg/L		112	85 - 115	0	20

**Lab Sample ID: 580-61729-1 DU**  
**Matrix: Water**  
**Analysis Batch: 225363**

**Client Sample ID: WCTSW001B-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	3.1		3.28		mg/L		5	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

**Lab Sample ID: MB 580-225432/1**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			08/19/16 14:48	1

**Lab Sample ID: LCS 580-225432/2**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.9		mg/L		109	85 - 115

**Lab Sample ID: 580-61729-11 MS**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: MW003-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	31		20.0	52.4		mg/L		109	85 - 115

**Lab Sample ID: 580-61729-11 MSD**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: MW003-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	31		20.0	53.4		mg/L		114	85 - 115	2	20

**Lab Sample ID: 580-61729-11 DU**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: MW003-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	31		31.6		mg/L		3	20



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: WCTSW001B-E2**

**Lab Sample ID: 580-61729-1**

**Date Collected: 08/15/16 10:15**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6010C		1	225241	08/17/16 14:53	HJM	TAL SEA
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6010C		10	225330	08/18/16 11:27	HJM	TAL SEA
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6020A		5	225240	08/17/16 16:16	HJM	TAL SEA
Total Recoverable	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Total Recoverable	Analysis	6020A		5	225240	08/17/16 16:20	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225162	08/16/16 12:58	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225164	08/16/16 12:58	RSB	TAL SEA
Dissolved	Analysis	300.0		10	225164	08/16/16 16:02	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225086	08/16/16 15:17	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	225087	08/16/16 15:31	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	338978	08/22/16 16:29	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	225363	08/18/16 09:26	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	225222	08/17/16 14:40	Z1T	TAL SEA

**Client Sample ID: WCTSW002B-E2**

**Lab Sample ID: 580-61729-2**

**Date Collected: 08/15/16 10:30**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6010C		1	225241	08/17/16 14:57	HJM	TAL SEA
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6010C		10	225330	08/18/16 11:31	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225162	08/16/16 13:53	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225164	08/16/16 13:53	RSB	TAL SEA
Dissolved	Analysis	300.0		10	225164	08/16/16 16:21	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225086	08/16/16 15:17	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	225087	08/16/16 15:31	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	338978	08/22/16 16:29	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	225363	08/18/16 09:26	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	225222	08/17/16 14:40	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: WCTSW003B-E2**

**Lab Sample ID: 580-61729-3**

**Date Collected: 08/15/16 09:45**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6010C		1	225241	08/17/16 15:00	HJM	TAL SEA
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6010C		10	225330	08/18/16 11:34	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225162	08/16/16 14:12	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225164	08/16/16 14:12	RSB	TAL SEA
Dissolved	Analysis	300.0		10	225164	08/16/16 16:39	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225086	08/16/16 15:17	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	225087	08/16/16 15:32	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	338978	08/22/16 16:29	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	225363	08/18/16 09:26	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	225222	08/17/16 14:40	Z1T	TAL SEA

**Client Sample ID: WCTSW004B-E2**

**Lab Sample ID: 580-61729-4**

**Date Collected: 08/15/16 11:45**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			225586	08/22/16 17:13	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	225813	08/24/16 21:04	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		1	225363	08/18/16 09:26	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	225222	08/17/16 14:40	Z1T	TAL SEA

**Client Sample ID: WCTSW501B-E2**

**Lab Sample ID: 580-61729-5**

**Date Collected: 08/15/16 10:15**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6010C		1	225241	08/17/16 15:04	HJM	TAL SEA
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6010C		10	225330	08/18/16 11:37	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225162	08/16/16 14:30	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225164	08/16/16 14:30	RSB	TAL SEA
Dissolved	Analysis	300.0		10	225164	08/16/16 16:57	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225086	08/16/16 15:17	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	225087	08/16/16 15:31	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	338978	08/22/16 16:29	NAP	TAL DEN

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: WCTSW501B-E2**

**Lab Sample ID: 580-61729-5**

**Date Collected: 08/15/16 10:15**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 5310B		1	225363	08/18/16 09:26	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	225222	08/17/16 14:40	Z1T	TAL SEA

**Client Sample ID: BSWW001-E2**

**Lab Sample ID: 580-61729-6**

**Date Collected: 08/15/16 13:30**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6010C		1	225241	08/17/16 15:07	HJM	TAL SEA
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6010C		50	225330	08/18/16 11:40	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225162	08/16/16 14:49	RSB	TAL SEA
Dissolved	Analysis	300.0		10	225164	08/16/16 17:16	RSB	TAL SEA
Dissolved	Analysis	300.0		100	225164	08/16/16 22:47	RSB	TAL SEA
Dissolved	Analysis	300.0		500	225164	08/17/16 09:18	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225086	08/16/16 15:18	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	225087	08/16/16 15:31	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	338978	08/22/16 16:29	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	225363	08/18/16 09:26	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	225222	08/17/16 14:40	Z1T	TAL SEA

**Client Sample ID: USSW001-E2**

**Lab Sample ID: 580-61729-7**

**Date Collected: 08/15/16 13:30**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6010C		1	225241	08/17/16 15:11	HJM	TAL SEA
Dissolved	Prep	3005A			225108	08/16/16 17:21	PAB	TAL SEA
Dissolved	Analysis	6010C		1	225330	08/18/16 11:44	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225162	08/16/16 15:07	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225164	08/16/16 15:07	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225086	08/16/16 15:18	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	225087	08/16/16 15:31	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	338978	08/22/16 16:29	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	225363	08/18/16 09:26	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	225222	08/17/16 14:40	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

**Client Sample ID: OF2-E2**

**Date Collected: 08/15/16 11:30**

**Date Received: 08/16/16 09:13**

**Lab Sample ID: 580-61729-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		1	225363	08/18/16 09:26	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	225222	08/17/16 14:40	Z1T	TAL SEA

**Client Sample ID: OF3-E2**

**Date Collected: 08/15/16 11:40**

**Date Received: 08/16/16 09:13**

**Lab Sample ID: 580-61729-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		10	225363	08/18/16 09:26	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	225222	08/17/16 14:40	Z1T	TAL SEA

**Client Sample ID: MW002R-E2**

**Date Collected: 08/15/16 16:00**

**Date Received: 08/16/16 09:13**

**Lab Sample ID: 580-61729-10**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			225586	08/22/16 17:13	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	225813	08/24/16 21:26	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		10	225363	08/18/16 09:26	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	225621	08/19/16 18:14	Z1T	TAL SEA

**Client Sample ID: MW003-E2**

**Date Collected: 08/15/16 15:00**

**Date Received: 08/16/16 09:13**

**Lab Sample ID: 580-61729-11**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			225586	08/22/16 17:13	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	225813	08/24/16 21:49	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		2	225432	08/19/16 14:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225621	08/19/16 18:14	Z1T	TAL SEA

**Client Sample ID: MW001-E2**

**Date Collected: 08/15/16 16:45**

**Date Received: 08/16/16 09:13**

**Lab Sample ID: 580-61729-12**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			225586	08/22/16 17:13	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	225813	08/24/16 22:12	D1R	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		10	225432	08/19/16 14:49	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225621	08/19/16 18:14	Z1T	TAL SEA

**Client Sample ID: MW004-E2**

**Lab Sample ID: 580-61729-13**

**Date Collected: 08/15/16 18:20**

**Matrix: Water**

**Date Received: 08/16/16 09:13**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			225586	08/22/16 17:13	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	225813	08/24/16 22:34	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		1	225432	08/19/16 14:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	225621	08/19/16 18:14	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO <sub>3</sub>
SM 2320B		Water	Carbonate Alkalinity as CaCO <sub>3</sub>
SM 2320B		Water	Hydroxide Alkalinity as CaCO <sub>3</sub>
SM 2540D		Water	Total Suspended Solids
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61729-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-61729-1	WCTSW001B-E2	Water	08/15/16 10:15	08/16/16 09:13
580-61729-2	WCTSW002B-E2	Water	08/15/16 10:30	08/16/16 09:13
580-61729-3	WCTSW003B-E2	Water	08/15/16 09:45	08/16/16 09:13
580-61729-4	WCTSW004B-E2	Water	08/15/16 11:45	08/16/16 09:13
580-61729-5	WCTSW501B-E2	Water	08/15/16 10:15	08/16/16 09:13
580-61729-6	BWSW001-E2	Water	08/15/16 13:30	08/16/16 09:13
580-61729-7	USSW001-E2	Water	08/15/16 13:30	08/16/16 09:13
580-61729-8	OF2-E2	Water	08/15/16 11:30	08/16/16 09:13
580-61729-9	OF3-E2	Water	08/15/16 11:40	08/16/16 09:13
580-61729-10	MW002R-E2	Water	08/15/16 16:00	08/16/16 09:13
580-61729-11	MW003-E2	Water	08/15/16 15:00	08/16/16 09:13
580-61729-12	MW001-E2	Water	08/15/16 16:45	08/16/16 09:13
580-61729-13	MW004-E2	Water	08/15/16 18:20	08/16/16 09:13

55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

Field Sampler(s):  
GSI

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>		Brooks - Ben Wozniak- 206-753-6158
Project # or PO #: 603.002.012	Custody Seals intact?	<b>Brooks</b>		
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	<b>Analysis Requested</b>		
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C	SM5310B: Total Organic Carbon	SM5310C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	TestAmerica - Christabel Escarez- 253.248.4975
Report to email: echughes@gslws.com, cryals@gslws.com	Therm ID No.: _____ Therm Exp. _____	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	
<b>Analysis Turnaround Time:</b>		6010C: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	
Standard 21 day TAT on Most Analyses		SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	
Rush 5 day on Dissolved Metals in Porewater		6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	
		8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	
		1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	
		Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)		

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
WCTSW001B-EZ	8/15/16	1015	4643	G	W	11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
WCTSW002B-EZ		1030	3740	G		10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	no disAs
WCTSW003B-EZ		945	3050	G		10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
WCTSW004B-EZ		1145	574	G		7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	no cations
WCTSW501B-EZ		1015	4643	G		10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
WCT BWSW001-EZ		1330	35236	G		10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
VSSW001-EZ		1330	231	G		10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
OF2-EZ		1130	20029	G		5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	no sulfide
OF3-EZ		1140	8801	G		5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	no sulfide
MW002R-EZ		1600	825	G		7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW003-EZ		1500	687	G		8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	WU As@TA
MW002-EZ	8/15	1645	895	G	W	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW004-EZ	8/15	1820	256	G	W	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

<b>Possible Hazard Identification:</b>	<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>
Are samples hazardous? <input checked="" type="checkbox"/> No	
If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic	<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year
select hazard(s):	
Relinquished by: <i>[Signature]</i> Date/Time: 8/16/16 0913	Received by: <i>[Signature]</i> SEA TA Date/Time: 8/16/16 0913
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____	Received in Laboratory by: _____ Date/Time: _____

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.





TB Cooler ~~5.9~~ Cor 4.1 Unc 4.3  
Cooler Dsc ~~B/W~~ @ Lab  
~~Wex~~/Packs Packing ~~Other~~  
Clido w/o

TB Cooler ~~5.9~~ Cor 5.7 Unc 5.9  
Cooler Dsc ~~B/W~~ @ Lab  
~~Wex~~/Packs Packing ~~Other~~  
Clido w/o

TB Cooler ~~5.9~~ Cor 5.9 Unc 6.1  
Cooler Dsc ~~B/W~~ @ Lab  
~~Wex~~/Packs Packing ~~Other~~  
Clido w/o

TB Cooler ~~5.9~~ Cor 5.7 Unc 5.9  
Cooler Dsc ~~B/W~~ @ Lab  
~~Wex~~/Packs Packing ~~Other~~  
Clido w/o

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler: Escarez, Christabel C		Carrier Tracking Not(s)					
Client Contact: Shipping/Receiving		E-Mail: christabel.escarez@testamericainc.com		COC No: 580-40180.1					
Company: TestAmerica Laboratories, Inc.		Lab PM: Escarez, Christabel C		Page: 1 of 1					
Address: 4955 Yarrow Street,		Due Date Requested: 9/1/2016		Job #: 580-61729-1					
City: Arvada		TAT Requested (days):		<b>Analysis Requested</b>					
State/Zip: CO, 80002		PO #:		Preservation Codes:					
Phone: 303-736-0100(Tel) 303-431-7171(Fax)		WO #:		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - HZSO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify):					
Project Name: Parcel 15 - POT		Project #: 58009703		Other:					
Site:		SSOW#:							
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, ST=Soil, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_52_D/FIELD_FLTRD Dissolved Sulfide, field-filtered	Total Number of Containers	Special Instructions/Note:
WCTSW001B-E2 (580-61729-1)	8/15/16	10:15 Pacific		Water	X	X		1	
WCTSW002B-E2 (580-61729-2)	8/15/16	10:30 Pacific		Water	X	X		1	
WCTSW003B-E2 (580-61729-3)	8/15/16	09:45 Pacific		Water	X	X		1	
WCTSW501B-E2 (580-61729-5)	8/15/16	10:15 Pacific		Water	X	X		1	
BWSW001-E2 (580-61729-6)	8/15/16	13:30 Pacific		Water	X	X		1	
USSW001-E2 (580-61729-7)	8/15/16	13:30 Pacific		Water	X	X		1	
<b>Possible Hazard Identification</b>									
Unconfirmed									
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2									
Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____									
Relinquished by: <i>Tom Blawie</i> Date/Time: 8/16/16 Company: TA-Sea Received by: <i>Keel PATA</i> Date/Time: 8-17-16 Company: TAP									
Relinquished by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____									
Relinquished by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____									
Custody Seals Intact: _____ Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: 2.5 IR S c.c. - RP 8-17-16									



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-61729-1

**Login Number: 61729**

**List Number: 1**

**Creator: Gall, Brandon A**

**List Source: TestAmerica Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	False	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-61729-1

**Login Number: 61729**  
**List Number: 2**  
**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**  
**List Creation: 08/17/16 01:58 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-61748-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Cindy Ryals



Authorized for release by:  
8/25/2016 5:05:02 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61748-1

**Job ID: 580-61748-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-61748-1

#### Comments

No additional comments.

#### Receipt

The sample was received on 8/16/2016 4:00 PM; the sample arrived in good condition and on ice. The temperature of the cooler at receipt was 2.6° C.

#### Receipt Exceptions

The reference method requires samples to be preserved to a pH of 2 or less. The following sample was received with insufficient preservation in the nitric preserved poly at a pH of 7: MW007-EZ (580-61748-1). The sample was preserved to the appropriate pH with HNO3 from lot 0000133393 at 1650 on 8/16/16 in the laboratory.

The client revised the sample ID from "MW007-EZ" to "MW007-E2" on 8/17/16.

The following sample was activated for 2320B alkalinity analysis by the client on 8/17/16: MW007-E2 (580-61748-1). This analysis was not originally requested on the chain-of-custody (COC).

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) SM 4500 S2 D: The following sample was diluted due to the nature of the sample matrix based on dark color: MW007-E2 (580-61748-1). Elevated reporting limits (RLs) are provided.

Method(s) SM 4500 S2 D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 280-338978 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61748-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61748-1

**Client Sample ID: MW007-E2**

**Lab Sample ID: 580-61748-1**

**Date Collected: 08/16/16 14:05**

**Matrix: Water**

**Date Received: 08/16/16 16:00**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	150		1.1	0.023	mg/L		08/24/16 09:40	08/25/16 11:15	1
Magnesium	100		1.1	0.13	mg/L		08/24/16 09:40	08/25/16 11:15	1
Potassium	38		3.3	0.15	mg/L		08/24/16 09:40	08/25/16 11:15	1
Sodium	260		2.0	0.55	mg/L		08/24/16 09:40	08/25/16 11:15	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	79		20	3.8	mg/L			08/19/16 18:14	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	87		5.0	5.0	mg/L			08/17/16 09:15	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.97		0.20	0.030	mg/L			08/17/16 12:21	1
Nitrite as N	ND		0.40	0.080	mg/L			08/17/16 12:21	1
Chloride	260		9.0	0.40	mg/L			08/17/16 12:39	10
Nitrate as N	0.16	J	0.20	0.020	mg/L			08/17/16 12:21	1
Bromide	1.9		0.50	0.060	mg/L			08/17/16 12:21	1
Sulfate	1.2		1.2	0.26	mg/L			08/17/16 12:21	1
Sulfide	ND		0.50	0.070	mg/L			08/22/16 16:29	10
Dissolved Organic Carbon	80		10	1.9	mg/L			08/19/16 14:48	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.14		0.10	0.10	mg/L			08/17/16 10:25	1
Alkalinity	1100		5.0	5.0	mg/L			08/19/16 09:21	1
Bicarbonate Alkalinity as CaCO3	1100		5.0	5.0	mg/L			08/19/16 09:21	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/19/16 09:21	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/19/16 09:21	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61748-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-225763/22-A**  
**Matrix: Water**  
**Analysis Batch: 225892**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225763**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		08/24/16 09:40	08/25/16 09:47	1
Magnesium	ND		1.1	0.13	mg/L		08/24/16 09:40	08/25/16 09:47	1
Potassium	ND		3.3	0.15	mg/L		08/24/16 09:40	08/25/16 09:47	1
Sodium	ND		2.0	0.55	mg/L		08/24/16 09:40	08/25/16 09:47	1

**Lab Sample ID: LCS 580-225763/23-A**  
**Matrix: Water**  
**Analysis Batch: 225892**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225763**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	19.3		mg/L		97	80 - 120
Magnesium	20.0	18.4		mg/L		92	80 - 120
Potassium	20.0	20.7		mg/L		104	80 - 120
Sodium	20.0	20.7		mg/L		104	80 - 120

**Lab Sample ID: LCSD 580-225763/24-A**  
**Matrix: Water**  
**Analysis Batch: 225892**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225763**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	20.0	19.6		mg/L		98	80 - 120	1	20
Magnesium	20.0	18.8		mg/L		94	80 - 120	2	20
Potassium	20.0	21.0		mg/L		105	80 - 120	2	20
Sodium	20.0	21.1		mg/L		105	80 - 120	2	20

**Lab Sample ID: 580-61863-G-6-C MS**  
**Matrix: Water**  
**Analysis Batch: 225892**

**Client Sample ID: Matrix Spike**  
**Prep Type: Dissolved**  
**Prep Batch: 225763**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	74		20.0	96.8		mg/L		113	75 - 125
Magnesium	93		20.0	117	4	mg/L		119	75 - 125
Potassium	14		20.0	36.1		mg/L		112	75 - 125
Sodium	250		20.0	275	4	mg/L		146	75 - 125

**Lab Sample ID: 580-61863-G-6-D MSD**  
**Matrix: Water**  
**Analysis Batch: 225892**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Dissolved**  
**Prep Batch: 225763**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	74		20.0	96.5		mg/L		112	75 - 125	0	20
Magnesium	93		20.0	117	4	mg/L		118	75 - 125	0	20
Potassium	14		20.0	35.9		mg/L		111	75 - 125	0	20
Sodium	250		20.0	277	4	mg/L		158	75 - 125	1	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61748-1

## Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 580-61863-G-6-B DU  
Matrix: Water  
Analysis Batch: 225892

Client Sample ID: Duplicate  
Prep Type: Dissolved  
Prep Batch: 225763

Analyte	Sample	Sample	DU DU		Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Calcium	74		75.3		mg/L		1	20
Magnesium	93		94.3		mg/L		1	20
Potassium	14		14.0		mg/L		2	20
Sodium	250		249		mg/L		1	20

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-225243/3  
Matrix: Water  
Analysis Batch: 225243

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrite as N	ND		0.40	0.080	mg/L			08/17/16 11:24	1
Nitrate as N	ND		0.20	0.020	mg/L			08/17/16 11:24	1

Lab Sample ID: LCS 580-225243/4  
Matrix: Water  
Analysis Batch: 225243

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5.00	5.12		mg/L		102	90 - 110

Lab Sample ID: LCSD 580-225243/5  
Matrix: Water  
Analysis Batch: 225243

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Nitrate as N	5.00	5.14		mg/L		103	90 - 110	0	15

Lab Sample ID: MB 580-225245/3  
Matrix: Water  
Analysis Batch: 225245

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Fluoride	ND		0.20	0.030	mg/L			08/17/16 11:24	1
Chloride	ND		0.90	0.040	mg/L			08/17/16 11:24	1
Bromide	ND		0.50	0.060	mg/L			08/17/16 11:24	1
Sulfate	ND		1.2	0.26	mg/L			08/17/16 11:24	1

Lab Sample ID: LCS 580-225245/4  
Matrix: Water  
Analysis Batch: 225245

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.8		mg/L		108	90 - 110
Bromide	5.00	5.22		mg/L		104	90 - 110

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61748-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID:** LCS 580-225245/4  
**Matrix:** Water  
**Analysis Batch:** 225245

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	51.1		mg/L		102	90 - 110

**Lab Sample ID:** LCSD 580-225245/5  
**Matrix:** Water  
**Analysis Batch:** 225245

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	5.19		mg/L		104	90 - 110	0	15
Chloride	50.0	53.8		mg/L		108	90 - 110	0	15
Bromide	5.00	5.22		mg/L		104	90 - 110	0	15
Sulfate	50.0	51.2		mg/L		102	90 - 110	0	15

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID:** MB 580-225161/1  
**Matrix:** Water  
**Analysis Batch:** 225161

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/17/16 10:25	1

**Lab Sample ID:** LCS 580-225161/2  
**Matrix:** Water  
**Analysis Batch:** 225161

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.99		mg/L		100	90 - 110

**Lab Sample ID:** 580-61748-1 MS  
**Matrix:** Water  
**Analysis Batch:** 225161

**Client Sample ID:** MW007-E2  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	0.14		2.00	1.90		mg/L		88	80 - 120

**Lab Sample ID:** 580-61748-1 MSD  
**Matrix:** Water  
**Analysis Batch:** 225161

**Client Sample ID:** MW007-E2  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	0.14		2.00	1.86		mg/L		86	80 - 120	2	20

**Lab Sample ID:** 580-61748-1 DU  
**Matrix:** Water  
**Analysis Batch:** 225161

**Client Sample ID:** MW007-E2  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
ortho-Phosphate	0.14		0.138		mg/L		0.8	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61748-1

## Method: SM 2320B - Alkalinity

**Lab Sample ID: LCS 580-225311/2**  
**Matrix: Water**  
**Analysis Batch: 225311**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	101		mg/L		101	85 - 115

**Lab Sample ID: 580-61778-A-1 DU**  
**Matrix: Water**  
**Analysis Batch: 225311**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	85		84.7		mg/L		0.8	17
Bicarbonate Alkalinity as CaCO3	85		84.7		mg/L		0.8	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Hydroxide Alkalinity as CaCO3	ND		ND		mg/L		NC	20

**Lab Sample ID: 580-61788-B-3 DU**  
**Matrix: Water**  
**Analysis Batch: 225311**

**Client Sample ID: Duplicate**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	550		526		mg/L		4	17
Bicarbonate Alkalinity as CaCO3	550		526		mg/L		4	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Hydroxide Alkalinity as CaCO3	ND		ND		mg/L		NC	20

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 580-225142/1**  
**Matrix: Water**  
**Analysis Batch: 225142**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			08/17/16 09:15	1

**Lab Sample ID: LCS 580-225142/2**  
**Matrix: Water**  
**Analysis Batch: 225142**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	30.0	27.6		mg/L		92	70.6 - 120

**Lab Sample ID: 580-61729-E-10 DU**  
**Matrix: Water**  
**Analysis Batch: 225142**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	ND		ND		mg/L		NC	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61748-1

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID: MB 280-338978/32**  
**Matrix: Water**  
**Analysis Batch: 338978**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			08/22/16 16:29	1

**Lab Sample ID: LCS 280-338978/31**  
**Matrix: Water**  
**Analysis Batch: 338978**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.442	0.449		mg/L		102	80 - 119

**Lab Sample ID: 280-86966-N-3 MS**  
**Matrix: Water**  
**Analysis Batch: 338978**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND	F1	4.42	1.25	F1	mg/L		28	80 - 119

**Lab Sample ID: 280-86966-N-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 338978**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND	F1	4.42	1.38	F1	mg/L		31	80 - 119	10	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-225621/1**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			08/19/16 18:14	1

**Lab Sample ID: LCS 580-225621/2**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.85		mg/L		99	85 - 115

**Lab Sample ID: 580-61730-D-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	140		200	349		mg/L		105	85 - 115

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61748-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: 580-61730-D-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	140		200	346		mg/L		104	85 - 115	1	20

**Lab Sample ID: 580-61730-D-1 DU**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	140		139		mg/L		0.3	20

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-225432/1**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			08/19/16 14:48	1

**Lab Sample ID: LCS 580-225432/2**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.9		mg/L		109	85 - 115

**Lab Sample ID: 580-61729-C-11 MS**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: Matrix Spike**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	31		20.0	52.4		mg/L		109	85 - 115

**Lab Sample ID: 580-61729-C-11 MSD**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	31		20.0	53.4		mg/L		114	85 - 115	2	20

**Lab Sample ID: 580-61729-C-11 DU**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: Duplicate**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	31		31.6		mg/L		3	20

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61748-1

**Client Sample ID: MW007-E2**

**Lab Sample ID: 580-61748-1**

**Date Collected: 08/16/16 14:05**

**Matrix: Water**

**Date Received: 08/16/16 16:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225763	08/24/16 09:40		TAL SEA
Dissolved	Analysis	6010C		1	225892	08/25/16 11:15	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225243	08/17/16 12:21	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225245	08/17/16 12:21	RSB	TAL SEA
Dissolved	Analysis	300.0		10	225245	08/17/16 12:39	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225161	08/17/16 10:25	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	225362	08/19/16 09:21	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225142	08/17/16 09:15	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		10	338978	08/22/16 16:29	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		10	225432	08/19/16 14:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225621	08/19/16 18:14	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61748-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 2540D		Water	Total Suspended Solids
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61748-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-61748-1	MW007-E2	Water	08/16/16 14:05	08/16/16 16:00

---

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

61748

55 SW Yamhill St, Suite 300 Portland, Oregon 97204 503.239.8700	<h2 style="margin: 0;">Chain of Custody Record</h2>	Field Sampler(s): <u>SL</u>
---	---	-----------------------------

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>	<b>Lab PM</b>																																																																																																																																																																																																																																																																																																																										
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>	Brooks - Ben Wozniak - 206-753-6158  TestAmerica - Christabel Escarez - 253.248.4975																																																																																																																																																																																																																																																																																																																										
Project # or PO #: 603.002.012	Custody Seals intact?	<b>Brooks</b>																																																																																																																																																																																																																																																																																																																											
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	<b>Analysis Requested</b>																																																																																																																																																																																																																																																																																																																											
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C	<table border="1" style="width:100%; border-collapse: collapse; font-size: 8px;"> <tr> <td style="width:10%;">SM5310B: Total Organic Carbon</td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td>SM5310B: Dissolved Organic Carbon (field filtered)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SM4500 S 2D: Sulfide (dissolved; 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Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)**	365.1: Major Anions (Orthophosphate, dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1035M: Arsenic, Iron, and Manganese (dissolved; field filtered)**	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
MW007-EZ	8/16	1405	2822	G	W	12	X	X	X	X	X	X	X	X					X	X	X	
MW007-EZ-BAT-2	8/16	1440	2822	G	W	2																Brooks
MW007-EZ-BAT-2	↓	↓	↓	↓	↓	2																Batch
MW007-EZ-BAT-3	↓	↓	↓	↓	↓	2																Samples
MW007-EZ-BAT-4	↓	↓	↓	↓	↓	2																
MW007-EZ-BAT-5	↓	↓	↓	↓	↓	2																
MW007-EZ-BAT-6	↓	↓	↓	↓	↓	2																



580-61748 Chain of Custody

<b>Possible Hazard Identification:</b> Are samples hazardous? <input checked="" type="checkbox"/> No If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic select hazard(s): Relinquished by: <u>SL</u> Date/Time: <u>8/16/18 1545</u>	<b>Sample Disposal</b> (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year Received by: <u>B. Hill SEATA</u> Date/Time: <u>8/16/18 1600</u> Received by: _____ Date/Time: _____ Received in Laboratory by: _____ Date/Time: _____
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____	

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

TB Cooler IR2 Cor 26 Uncl-8  
 Cooler Desc 13/15 a Lab  
 WetPacks Packing other  
 cli ob W 8/25/2016

# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Lab PM: Escarez, Christabel C		Carrier Tracking No(s):	
Client Contact: Shipping/Receiving		E-Mail: christabel_escarez@testamericainc.com		COC No: 580-40211.1	
Company: TestAmerica Laboratories, Inc.		Due Date Requested: 9/1/2016		Page: 1 of 1	
Address: 4955 Yarrow Street		TAT Requested (days):		Job #: 580-61748-1	
City: Arvada		RO #:		Preservation Codes:	
State, Zip: CO, 80002		WO #:		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHCO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Phone: 303-736-0100(Tel) 303-431-7171(Fax)		Project #: 58009703		M - Hexane N - None O - As/NaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecalhydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)	
Email:		SSOW#:		Total Number of Containers	
Project Name: Parcel 15 RI		Sample Date		Special Instructions/Note:	
Site:		Sample Time			
Sample Identification - Client ID (Lab ID)		Sample Type (C=comp, G=grab)			
MW007-E2 (580-61748-1)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)			
8/16/16		14:05 Pacific			
8/16/16		Water			
X		X			
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)			
X		X			
M4500_S2_D/FIELD_FLTRD Dissolved Sulfide, field-filtered					
<p><b>Possible Hazard Identification</b>          Unconfirmed          Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2</p>					
<p><b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>  <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>					
<p><b>Empty Kit Relinquished by:</b> _____ Date: _____ Method of Shipment: _____</p>					
Relinquished by: <i>B. Stoll</i>		Company: SEATA		Date/Time: 8-18-16 0940	
Relinquished by:		Company:		Date/Time:	
Relinquished by:		Company:		Date/Time:	
Custody Seals Intact		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	
A Yes A No				0.2 IR # S 6.0 Transfer RP 8-18-16	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-61748-1

**Login Number: 61748**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Blankinship, Tom X**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Refer to Job Narrative for details.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-61748-1

**Login Number: 61748**  
**List Number: 2**  
**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**  
**List Creation: 08/18/16 03:40 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-61763-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Cindy Ryals



Authorized for release by:  
8/25/2016 4:52:00 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61763-1

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**Job ID: 580-61763-1**

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**Laboratory: TestAmerica Seattle**

## Narrative

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### Job Narrative 580-61763-1

#### Receipt

The sample was received on 8/17/2016 1:00 PM; the sample arrived in good condition, properly preserved, and on ice. The temperature of the cooler at receipt was 5.7° C.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) SM 4500 S2 D: The following sample was diluted due to the nature of the sample matrix based on dark color: MW009-E2 (580-61763-1). Elevated reporting limits (RLs) are provided.

Method(s) SM 4500 S2 D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 280-338978 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61763-1

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61763-1

**Client Sample ID: MW009-E2**

**Lab Sample ID: 580-61763-1**

**Date Collected: 08/16/16 16:55**

**Matrix: Water**

**Date Received: 08/17/16 13:00**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	92		1.1	0.023	mg/L		08/19/16 09:16	08/19/16 15:25	1
Magnesium	88		1.1	0.13	mg/L		08/19/16 09:16	08/19/16 15:25	1
Potassium	37		3.3	0.15	mg/L		08/19/16 09:16	08/19/16 15:25	1
Sodium	190		2.0	0.55	mg/L		08/19/16 09:16	08/19/16 15:25	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	100		10	1.9	mg/L			08/19/16 18:14	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	160		13	13	mg/L			08/18/16 10:33	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.97		0.20	0.030	mg/L			08/18/16 12:45	1
Nitrite as N	ND		0.40	0.080	mg/L			08/18/16 12:45	1
Chloride	160		9.0	0.40	mg/L			08/18/16 13:58	10
Nitrate as N	0.26		0.20	0.020	mg/L			08/18/16 12:45	1
Bromide	1.8		0.50	0.060	mg/L			08/18/16 12:45	1
Sulfate	ND		1.2	0.26	mg/L			08/18/16 12:45	1
Sulfide	ND		0.50	0.070	mg/L			08/22/16 16:29	10
Dissolved Organic Carbon	100		10	1.9	mg/L			08/19/16 14:48	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.17		0.10	0.10	mg/L			08/18/16 11:05	1
Alkalinity	880		5.0	5.0	mg/L			08/18/16 13:29	1
Bicarbonate Alkalinity as CaCO3	880		5.0	5.0	mg/L			08/18/16 13:29	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/18/16 13:29	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/18/16 13:29	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61763-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-225360/17-A**  
**Matrix: Water**  
**Analysis Batch: 225501**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225360**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		08/19/16 09:16	08/19/16 14:44	1
Magnesium	ND		1.1	0.13	mg/L		08/19/16 09:16	08/19/16 14:44	1
Potassium	ND		3.3	0.15	mg/L		08/19/16 09:16	08/19/16 14:44	1
Sodium	ND		2.0	0.55	mg/L		08/19/16 09:16	08/19/16 14:44	1

**Lab Sample ID: LCS 580-225360/18-A**  
**Matrix: Water**  
**Analysis Batch: 225501**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225360**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	21.9		mg/L		110	80 - 120
Magnesium	20.0	21.8		mg/L		109	80 - 120
Potassium	20.0	21.5		mg/L		108	80 - 120
Sodium	20.0	21.8		mg/L		109	80 - 120

**Lab Sample ID: LCSD 580-225360/19-A**  
**Matrix: Water**  
**Analysis Batch: 225501**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225360**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	20.0	21.3		mg/L		107	80 - 120	3	20
Magnesium	20.0	21.1		mg/L		106	80 - 120	3	20
Potassium	20.0	21.1		mg/L		105	80 - 120	2	20
Sodium	20.0	21.3		mg/L		107	80 - 120	2	20

**Lab Sample ID: 580-61745-A-1-C MS**  
**Matrix: Water**  
**Analysis Batch: 225501**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225360**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	39		20.0	61.3		mg/L		111	75 - 125
Magnesium	9.4		20.0	30.5		mg/L		105	75 - 125
Potassium	40		20.0	62.5		mg/L		113	75 - 125
Sodium	22		20.0	43.8		mg/L		111	75 - 125

**Lab Sample ID: 580-61745-A-1-D MSD**  
**Matrix: Water**  
**Analysis Batch: 225501**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225360**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	39		20.0	58.5		mg/L		97	75 - 125	5	20
Magnesium	9.4		20.0	29.0		mg/L		98	75 - 125	5	20
Potassium	40		20.0	60.0		mg/L		101	75 - 125	4	20
Sodium	22		20.0	42.1		mg/L		102	75 - 125	4	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61763-1

## Method: 6010C - Metals (ICP) (Continued)

**Lab Sample ID: 580-61745-A-1-B DU**  
**Matrix: Water**  
**Analysis Batch: 225501**

**Client Sample ID: Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225360**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Calcium	39		38.1		mg/L		2	20
Magnesium	9.4		9.17		mg/L		3	20
Potassium	40		39.0		mg/L		2	20
Sodium	22		21.3		mg/L		2	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 580-225356/3**  
**Matrix: Water**  
**Analysis Batch: 225356**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Fluoride	ND		0.20	0.030	mg/L			08/18/16 11:35	1
Chloride	ND		0.90	0.040	mg/L			08/18/16 11:35	1
Bromide	ND		0.50	0.060	mg/L			08/18/16 11:35	1
Sulfate	ND		1.2	0.26	mg/L			08/18/16 11:35	1

**Lab Sample ID: LCS 580-225356/4**  
**Matrix: Water**  
**Analysis Batch: 225356**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.8		mg/L		102	90 - 110
Bromide	5.00	5.22		mg/L		104	90 - 110
Sulfate	50.0	51.0		mg/L		102	90 - 110

**Lab Sample ID: LCSD 580-225356/5**  
**Matrix: Water**  
**Analysis Batch: 225356**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Chloride	50.0	50.8		mg/L		102	90 - 110	0	15
Bromide	5.00	5.22		mg/L		104	90 - 110	0	15
Sulfate	50.0	51.2		mg/L		102	90 - 110	0	15

**Lab Sample ID: MB 580-225361/3**  
**Matrix: Water**  
**Analysis Batch: 225361**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrite as N	ND		0.40	0.080	mg/L			08/18/16 11:35	1
Nitrate as N	ND		0.20	0.020	mg/L			08/18/16 11:35	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61763-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID:** LCS 580-225361/4  
**Matrix:** Water  
**Analysis Batch:** 225361

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	5.00	5.11		mg/L		102	90 - 110
Nitrate as N	5.00	5.12		mg/L		102	90 - 110

**Lab Sample ID:** LCSD 580-225361/5  
**Matrix:** Water  
**Analysis Batch:** 225361

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	5.00	5.13		mg/L		103	90 - 110	0	15
Nitrate as N	5.00	5.13		mg/L		103	90 - 110	0	15

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID:** MB 580-225161/1  
**Matrix:** Water  
**Analysis Batch:** 225161

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/17/16 10:25	1

**Lab Sample ID:** LCS 580-225161/2  
**Matrix:** Water  
**Analysis Batch:** 225161

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.99		mg/L		100	90 - 110

**Lab Sample ID:** 580-61748-E-1 MS  
**Matrix:** Water  
**Analysis Batch:** 225161

**Client Sample ID:** Matrix Spike  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	0.14		2.00	1.90		mg/L		88	80 - 120

**Lab Sample ID:** 580-61748-E-1 MSD  
**Matrix:** Water  
**Analysis Batch:** 225161

**Client Sample ID:** Matrix Spike Duplicate  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	0.14		2.00	1.86		mg/L		86	80 - 120	2	20

**Lab Sample ID:** 580-61748-E-1 DU  
**Matrix:** Water  
**Analysis Batch:** 225161

**Client Sample ID:** Duplicate  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	0.14		2.00	0.138		mg/L				0.8	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61763-1

## Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 580-225311/2  
Matrix: Water  
Analysis Batch: 225311

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	101		mg/L		101	85 - 115

Lab Sample ID: 580-61788-B-3 DU  
Matrix: Water  
Analysis Batch: 225311

Client Sample ID: Duplicate  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	550		526		mg/L		4	17
Bicarbonate Alkalinity as CaCO3	550		526		mg/L		4	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Hydroxide Alkalinity as CaCO3	ND		ND		mg/L		NC	20

## Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 580-225278/1  
Matrix: Water  
Analysis Batch: 225278

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			08/18/16 10:33	1

Lab Sample ID: LCS 580-225278/2  
Matrix: Water  
Analysis Batch: 225278

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	30.0	32.4		mg/L		108	70.6 - 120

Lab Sample ID: 580-61754-A-1 DU  
Matrix: Water  
Analysis Batch: 225278

Client Sample ID: Duplicate  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	2.0		2.00		mg/L		0	20

## Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-338978/32  
Matrix: Water  
Analysis Batch: 338978

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			08/22/16 16:29	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61763-1

## Method: SM 4500 S2 D - Sulfide, Total (Continued)

**Lab Sample ID: LCS 280-338978/31**  
**Matrix: Water**  
**Analysis Batch: 338978**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.442	0.449		mg/L		102	80 - 119

**Lab Sample ID: 280-86966-N-3 MS**  
**Matrix: Water**  
**Analysis Batch: 338978**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND	F1	4.42	1.25	F1	mg/L		28	80 - 119

**Lab Sample ID: 280-86966-N-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 338978**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND	F1	4.42	1.38	F1	mg/L		31	80 - 119	10	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-225621/1**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			08/19/16 18:14	1

**Lab Sample ID: LCS 580-225621/2**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.85		mg/L		99	85 - 115

**Lab Sample ID: 580-61730-D-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	140		200	349		mg/L		105	85 - 115

**Lab Sample ID: 580-61730-D-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	140		200	346		mg/L		104	85 - 115	1	20

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61763-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: 580-61730-D-1 DU**  
**Matrix: Water**  
**Analysis Batch: 225621**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Organic Carbon	140		139		mg/L		0.3	20

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-225432/1**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			08/19/16 14:48	1

**Lab Sample ID: LCS 580-225432/2**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.9		mg/L		109	85 - 115

**Lab Sample ID: 580-61729-C-11 MS**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: Matrix Spike**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	31		20.0	52.4		mg/L		109	85 - 115

**Lab Sample ID: 580-61729-C-11 MSD**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Dissolved Organic Carbon	31		20.0	53.4		mg/L		114	85 - 115	2	20

**Lab Sample ID: 580-61729-C-11 DU**  
**Matrix: Water**  
**Analysis Batch: 225432**

**Client Sample ID: Duplicate**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Dissolved Organic Carbon	31		31.6		mg/L		3	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61763-1

**Client Sample ID: MW009-E2**

**Lab Sample ID: 580-61763-1**

**Date Collected: 08/16/16 16:55**

**Matrix: Water**

**Date Received: 08/17/16 13:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225360	08/19/16 09:16	MKN	TAL SEA
Dissolved	Analysis	6010C		1	225501	08/19/16 15:25	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225356	08/18/16 12:45	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225361	08/18/16 12:45	RSB	TAL SEA
Dissolved	Analysis	300.0		10	225356	08/18/16 13:58	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225161	08/18/16 11:05	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	225311	08/18/16 13:29	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225278	08/18/16 10:33	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		10	338978	08/22/16 16:29	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		10	225432	08/19/16 14:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	225621	08/19/16 18:14	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61763-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 2540D		Water	Total Suspended Solids
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61763-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-61763-1	MW009-E2	Water	08/16/16 16:55	08/17/16 13:00

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- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11



55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

# Chain of Custody Record

61763

Field Sampler(s): *[Signature]*

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>		
<b>Project Name:</b> Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>		<i>Brooks- Ben Wozniak- 206-753-6158</i>		
<b>Project # or PO #:</b> 603.002.012	Custody Seals intact?	<b>Brooks</b>				
<b>Project Manager:</b> Erin Hughes/Cindy Ryals	Hand delivered?	<b>Analysis Requested</b>				
<b>Phone #:</b> 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C	SM5310B: Total Organic Carbon SM5310B: Dissolved Organic Carbon (field filtered) SM4500 S 2D: Sulfide (dissolved; field filtered) SM2540D: Total Suspended Solids (TSS) 6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)* 300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)** 300.0: Nitrate and Nitrite (dissolved; field filtered) SM2320B: Alkalinity (field filtered)** 365.1: Major Anions (Orthophosphate; dissolved; field filtered) 6020A: Arsenic (total) 6020A: Arsenic, Iron, and Manganese (dissolved; field filtered) 8260D SIM: Pentachlorophenol 1638M: Arsenic (total) 1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)** Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	<i>TestAmerica - Christabel Escarez- 253.248.4975</i>			
<b>Report to email:</b> echughes@gsiws.com, cryals@gsiws.com	Therm ID No.: _____ Therm Exp. _____			<b>Sample Identification</b>		
<b>Analysis Turnaround Time:</b>				<b>Sample Date</b>	<b>Sample Time</b>	<b>Field Conductivity (uS/cm)</b>
Standard 21 day TAT on Most Analyses						<b>Sample Type (C=Comp, G=Grab)</b>
Rush 5 day on Dissolved Metals in Porewater						<b>Matrix</b>

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)**	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)**	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
<i>MW09-EZ</i>	<i>8/16</i>	<i>1855</i>	<i>2315</i>	<i>G</i>	<i>W</i>	<i>12</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>				<i>X</i>	<i>X</i>	<i>X</i>	



580-61763 Chain of Custody

<b>Possible Hazard Identification:</b>		<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>	
Are samples hazardous? <input checked="" type="checkbox"/> No		<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year	
If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic			
select hazard(s):			
Relinquished by: <i>[Signature]</i>	Date/Time: <i>8/17/16 1300</i>	Received by: <i>B. Hall</i>	Date/Time: <i>8/17/16 1300</i>
Relinquished by: <i>[Signature]</i>	Date/Time: <i>8/17/16 1300</i>	Received by: <i>SEA TA</i>	Date/Time:
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other	Tracking #:	Received in Laboratory by:	Date/Time:

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

TB Cooler <sup>IR2</sup> Cor 5.7 Unc 5.8  
 Cooler Dsc (g B/w) @ Lab  
 Wet Packs Packing other  
*Clf do* *W36*  
 8/25/2016

Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact: Shipping/Receiving		Phone:		Escarez, Christabel C		E-Mail: christabel.escarez@testamerica.com		580-40227.1	
Company: TestAmerica Laboratories, Inc.		Due Date Requested: 9/2/2016		TAT Requested (days):		Analysis Requested		Job #: 580-61763-1	
Address: 4955 Yarrow Street		City: Arvada		State, Zip CO, 80002		PO #:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - NaZOH Q - NaZSO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Phone: 303-736-0100(Tel) 303-431-7171(Fax)		E-Mail:		Project #: 58009703		SSOW#:		Other:	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=wastewat, BT=Tissue, A=Air)	
MW009-E2 (580-61763-1)		8/16/16		16:55 Pacific		Water		Special Instructions/Note:	
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		SM4500_S2_D/FIELD_FLTRD Dissolved Sulfide, field-filtered		Total Number of containers			
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		1			
<p><b>Possible Hazard Identification</b>          Unconfirmed          Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2</p>									
<p><b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>  <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>									
<p><b>Special Instructions/QC Requirements:</b></p>									
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:			
Relinquished by: Tom Blunt		8/18/16		Company: TASA		Received by: Reed Kops		Date/Time: 8-19-16 0930 Company: JAD	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time: Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time: Company:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 0 Z.4 IR S.O.C Transfer RP 8-19-16					



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-61763-1

**Login Number: 61763**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Blankinship, Tom X**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-61763-1

**Login Number: 61763**  
**List Number: 2**  
**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**  
**List Creation: 08/19/16 02:39 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-61788-1  
Client Project/Site: Parcel 15 - POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Cindy Ryals



Authorized for release by:  
8/30/2016 3:49:20 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

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**Job ID: 580-61788-1**

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**Laboratory: TestAmerica Seattle**

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## Narrative

### Job Narrative 580-61788-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 8/18/2016 8:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 2.0° C.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) SM 4500 S2 D: The following samples were diluted due to the nature of the sample matrix based on dark color of sample.: B-005R-E2 (580-61788-1), B-505R-E2 (580-61788-2), HC002-E2 (580-61788-3), MW008-E2 (580-61788-4), MW010-E2 (580-61788-5) and MW510-E2 (580-61788-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

**Client Sample ID: B-005R-E2**

**Lab Sample ID: 580-61788-1**

**Date Collected: 08/17/16 15:20**

**Matrix: Water**

**Date Received: 08/18/16 08:25**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.049		0.020	0.014	ug/L		08/22/16 17:13	08/24/16 22:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	73		44 - 125				08/22/16 17:13	08/24/16 22:57	1

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.1	J	5.0	1.4	ug/L		08/19/16 09:16	08/19/16 15:36	5

**Method: 6020A - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	17		5.0	1.4	ug/L		08/19/16 09:16	08/19/16 15:44	5
Iron	35000		200	29	ug/L		08/19/16 09:16	08/19/16 15:44	5
Manganese	1100		10	1.8	ug/L		08/19/16 09:16	08/19/16 15:44	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	19		10	1.9	mg/L			08/19/16 18:14	10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			08/18/16 10:33	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		1.0	0.14	mg/L			08/24/16 16:48	20
Dissolved Organic Carbon	18		10	1.9	mg/L			08/19/16 14:48	10

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

**Client Sample ID: B-505R-E2**

**Lab Sample ID: 580-61788-2**

**Date Collected: 08/17/16 16:00**

**Matrix: Water**

**Date Received: 08/18/16 08:25**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.051		0.021	0.014	ug/L		08/22/16 17:13	08/24/16 23:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	89		44 - 125				08/22/16 17:13	08/24/16 23:19	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	18		10	1.9	mg/L			08/19/16 18:14	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	4.8		2.0	2.0	mg/L			08/18/16 10:33	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		1.0	0.14	mg/L			08/24/16 16:48	20
Dissolved Organic Carbon	18		10	1.9	mg/L			08/19/16 14:48	10

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

**Client Sample ID: HC002-E2**

**Lab Sample ID: 580-61788-3**

Date Collected: 08/17/16 15:30

Matrix: Water

Date Received: 08/18/16 08:25

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	73		1.1	0.023	mg/L		08/19/16 09:16	08/19/16 15:28	1
Magnesium	20		1.1	0.13	mg/L		08/19/16 09:16	08/19/16 15:28	1
Potassium	32		3.3	0.15	mg/L		08/19/16 09:16	08/19/16 15:28	1
Sodium	60		2.0	0.55	mg/L		08/19/16 09:16	08/19/16 15:28	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	110		20	3.8	mg/L			08/19/16 18:14	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	160		20	20	mg/L			08/18/16 10:33	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.83		0.20	0.030	mg/L			08/18/16 13:03	1
Nitrite as N	ND		0.40	0.080	mg/L			08/18/16 13:03	1
Chloride	12		0.90	0.040	mg/L			08/18/16 13:03	1
Nitrate as N	ND		0.20	0.020	mg/L			08/18/16 13:03	1
Bromide	ND		0.50	0.060	mg/L			08/18/16 13:03	1
Sulfate	ND		1.2	0.26	mg/L			08/18/16 13:03	1
Sulfide	ND		1.0	0.14	mg/L			08/24/16 16:48	20
Dissolved Organic Carbon	120		10	1.9	mg/L			08/19/16 14:48	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	2.1		0.10	0.10	mg/L			08/18/16 11:37	1
Alkalinity	550		5.0	5.0	mg/L			08/18/16 13:29	1
Bicarbonate Alkalinity as CaCO3	550		5.0	5.0	mg/L			08/18/16 13:29	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/18/16 13:29	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/18/16 13:29	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

**Client Sample ID: MW008-E2**

**Lab Sample ID: 580-61788-4**

**Date Collected: 08/17/16 17:45**

**Matrix: Water**

**Date Received: 08/18/16 08:25**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>60</b>		20	3.8	mg/L			08/20/16 06:11	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>140</b>		10	10	mg/L			08/18/16 10:33	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		1.0	0.14	mg/L			08/24/16 16:48	20
<b>Dissolved Organic Carbon</b>	<b>69</b>		10	1.9	mg/L			08/19/16 14:48	10



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

**Client Sample ID: MW010-E2**

**Lab Sample ID: 580-61788-5**

**Date Collected: 08/17/16 15:40**

**Matrix: Water**

**Date Received: 08/18/16 08:25**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	85		1.1	0.023	mg/L		08/19/16 09:16	08/19/16 15:32	1
Magnesium	30		1.1	0.13	mg/L		08/19/16 09:16	08/19/16 15:32	1
Potassium	29		3.3	0.15	mg/L		08/19/16 09:16	08/19/16 15:32	1
Sodium	72		2.0	0.55	mg/L		08/19/16 09:16	08/19/16 15:32	1

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	38000		5.0	1.4	ug/L		08/19/16 09:16	08/19/16 15:40	5

**Method: 6020A - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	34000		5.0	1.4	ug/L		08/19/16 09:16	08/19/16 15:49	5
Iron	160000		200	29	ug/L		08/19/16 09:16	08/19/16 15:49	5
Manganese	5400		10	1.8	ug/L		08/19/16 09:16	08/19/16 15:49	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	54		20	3.8	mg/L			08/20/16 06:11	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	42		4.0	4.0	mg/L			08/18/16 10:33	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.43		0.20	0.030	mg/L			08/18/16 13:22	1
Nitrite as N	ND		0.40	0.080	mg/L			08/18/16 13:22	1
Chloride	11		0.90	0.040	mg/L			08/18/16 13:22	1
Nitrate as N	ND		0.20	0.020	mg/L			08/18/16 13:22	1
Bromide	ND		0.50	0.060	mg/L			08/18/16 13:22	1
Sulfate	ND		1.2	0.26	mg/L			08/18/16 13:22	1
Sulfide	ND		1.0	0.14	mg/L			08/24/16 16:48	20
Dissolved Organic Carbon	65		10	1.9	mg/L			08/19/16 14:48	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	1.4		0.10	0.10	mg/L			08/18/16 11:37	1
Alkalinity	660		5.0	5.0	mg/L			08/18/16 13:29	1
Bicarbonate Alkalinity as CaCO3	660		5.0	5.0	mg/L			08/18/16 13:29	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/18/16 13:29	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/18/16 13:29	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

**Client Sample ID: MW510-E2**

**Lab Sample ID: 580-61788-6**

Date Collected: 08/17/16 16:00

Matrix: Water

Date Received: 08/18/16 08:25

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	88		1.1	0.023	mg/L		08/19/16 09:16	08/19/16 15:35	1
Magnesium	31		1.1	0.13	mg/L		08/19/16 09:16	08/19/16 15:35	1
Potassium	30		3.3	0.15	mg/L		08/19/16 09:16	08/19/16 15:35	1
Sodium	74		2.0	0.55	mg/L		08/19/16 09:16	08/19/16 15:35	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	56		20	3.8	mg/L			08/20/16 06:11	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	62		4.0	4.0	mg/L			08/18/16 10:33	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.43		0.20	0.030	mg/L			08/18/16 13:40	1
Nitrite as N	ND		0.40	0.080	mg/L			08/18/16 13:40	1
Chloride	11		0.90	0.040	mg/L			08/18/16 13:40	1
Nitrate as N	0.56		0.20	0.020	mg/L			08/18/16 13:40	1
Bromide	ND		0.50	0.060	mg/L			08/18/16 13:40	1
Sulfate	ND		1.2	0.26	mg/L			08/18/16 13:40	1
Sulfide	ND		1.0	0.14	mg/L			08/24/16 16:48	20
Dissolved Organic Carbon	65		20	3.8	mg/L			08/27/16 15:13	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	1.4		0.10	0.10	mg/L			08/18/16 11:37	1
Alkalinity	660		5.0	5.0	mg/L			08/18/16 13:29	1
Bicarbonate Alkalinity as CaCO3	660		5.0	5.0	mg/L			08/18/16 13:29	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/18/16 13:29	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/18/16 13:29	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-225586/1-A**  
**Matrix: Water**  
**Analysis Batch: 225813**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 225586**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.020	0.014	ug/L		08/22/16 17:13	08/24/16 16:32	1
Surrogate	%Recovery	MB Qualifier	Limits						
2,4,6-Tribromophenol	83		44 - 125						
							Prepared	Analyzed	Dil Fac
							08/22/16 17:13	08/24/16 16:32	1

**Lab Sample ID: LCS 580-225586/2-A**  
**Matrix: Water**  
**Analysis Batch: 225813**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 225586**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Pentachlorophenol	8.00	6.80		ug/L		85	20 - 134		
Surrogate	%Recovery	LCS Qualifier	Limits						
2,4,6-Tribromophenol	86		44 - 125						

**Lab Sample ID: LCSD 580-225586/3-A**  
**Matrix: Water**  
**Analysis Batch: 225813**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 225586**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	8.00	7.40		ug/L		92	20 - 134	8	35
Surrogate	%Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	88		44 - 125						

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-225360/17-A**  
**Matrix: Water**  
**Analysis Batch: 225501**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225360**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		08/19/16 09:16	08/19/16 14:44	1
Magnesium	ND		1.1	0.13	mg/L		08/19/16 09:16	08/19/16 14:44	1
Potassium	ND		3.3	0.15	mg/L		08/19/16 09:16	08/19/16 14:44	1
Sodium	ND		2.0	0.55	mg/L		08/19/16 09:16	08/19/16 14:44	1

**Lab Sample ID: LCS 580-225360/18-A**  
**Matrix: Water**  
**Analysis Batch: 225501**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225360**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Calcium	20.0	21.9		mg/L		110	80 - 120		
Magnesium	20.0	21.8		mg/L		109	80 - 120		
Potassium	20.0	21.5		mg/L		108	80 - 120		
Sodium	20.0	21.8		mg/L		109	80 - 120		

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

## Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 580-225360/19-A  
Matrix: Water  
Analysis Batch: 225501

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total Recoverable  
Prep Batch: 225360

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Calcium	20.0	21.3		mg/L		107	80 - 120	3	20	
Magnesium	20.0	21.1		mg/L		106	80 - 120	3	20	
Potassium	20.0	21.1		mg/L		105	80 - 120	2	20	
Sodium	20.0	21.3		mg/L		107	80 - 120	2	20	

## Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-225360/17-A  
Matrix: Water  
Analysis Batch: 225502

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 225360

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		200	29	ug/L		08/19/16 09:16	08/19/16 14:42	5
Manganese	ND		10	1.8	ug/L		08/19/16 09:16	08/19/16 14:42	5

Lab Sample ID: LCS 580-225360/18-A  
Matrix: Water  
Analysis Batch: 225502

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 225360

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	RPD
Arsenic	4000	4230		ug/L		106	80 - 120	
Iron	22000	24100		ug/L		109	80 - 120	
Manganese	1000	1050		ug/L		105	80 - 120	

Lab Sample ID: LCSD 580-225360/19-A  
Matrix: Water  
Analysis Batch: 225502

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total Recoverable  
Prep Batch: 225360

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Arsenic	4000	4250		ug/L		106	80 - 120	1	20	
Iron	22000	23800		ug/L		108	80 - 120	1	20	
Manganese	1000	1050		ug/L		105	80 - 120	0	20	

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-225356/3  
Matrix: Water  
Analysis Batch: 225356

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.90	0.040	mg/L		08/18/16 11:35	1	
Bromide	ND		0.50	0.060	mg/L		08/18/16 11:35	1	
Sulfate	ND		1.2	0.26	mg/L		08/18/16 11:35	1	

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 580-225356/4

Matrix: Water

Analysis Batch: 225356

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	5.17		mg/L		103	90 - 110
Chloride	50.0	50.8		mg/L		102	90 - 110
Bromide	5.00	5.22		mg/L		104	90 - 110
Sulfate	50.0	51.0		mg/L		102	90 - 110

Lab Sample ID: LCSD 580-225356/5

Matrix: Water

Analysis Batch: 225356

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	5.18		mg/L		104	90 - 110	0	15
Chloride	50.0	50.8		mg/L		102	90 - 110	0	15
Bromide	5.00	5.22		mg/L		104	90 - 110	0	15
Sulfate	50.0	51.2		mg/L		102	90 - 110	0	15

Lab Sample ID: MB 580-225361/3

Matrix: Water

Analysis Batch: 225361

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.080	mg/L			08/18/16 11:35	1
Nitrate as N	ND		0.20	0.020	mg/L			08/18/16 11:35	1

Lab Sample ID: LCS 580-225361/4

Matrix: Water

Analysis Batch: 225361

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	5.00	5.11		mg/L		102	90 - 110
Nitrate as N	5.00	5.12		mg/L		102	90 - 110

Lab Sample ID: LCSD 580-225361/5

Matrix: Water

Analysis Batch: 225361

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	5.00	5.13		mg/L		103	90 - 110	0	15
Nitrate as N	5.00	5.13		mg/L		103	90 - 110	0	15

## Method: 365.1 - Phosphorus, Ortho

Lab Sample ID: MB 580-225282/1

Matrix: Water

Analysis Batch: 225282

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/18/16 11:37	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

## Method: 365.1 - Phosphorus, Ortho (Continued)

**Lab Sample ID: LCS 580-225282/2**

**Matrix: Water**

**Analysis Batch: 225282**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.97		mg/L		98	90 - 110

**Lab Sample ID: 580-61788-3 MS**

**Matrix: Water**

**Analysis Batch: 225282**

**Client Sample ID: HC002-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.1		2.00	3.83		mg/L		87	80 - 120

**Lab Sample ID: 580-61788-3 MSD**

**Matrix: Water**

**Analysis Batch: 225282**

**Client Sample ID: HC002-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	2.1		2.00	3.80		mg/L		86	80 - 120	1	20

**Lab Sample ID: 580-61788-3 DU**

**Matrix: Water**

**Analysis Batch: 225282**

**Client Sample ID: HC002-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
ortho-Phosphate	2.1		2.04		mg/L		2	20

## Method: SM 2320B - Alkalinity

**Lab Sample ID: LCS 580-225311/2**

**Matrix: Water**

**Analysis Batch: 225311**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	101		mg/L		101	85 - 115

**Lab Sample ID: 580-61788-3 DU**

**Matrix: Water**

**Analysis Batch: 225311**

**Client Sample ID: HC002-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	550		526		mg/L		4	17
Bicarbonate Alkalinity as CaCO3	550		526		mg/L		4	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Hydroxide Alkalinity as CaCO3	ND		ND		mg/L		NC	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID:** MB 580-225278/1  
**Matrix:** Water  
**Analysis Batch:** 225278

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			08/18/16 10:33	1

**Lab Sample ID:** LCS 580-225278/2  
**Matrix:** Water  
**Analysis Batch:** 225278

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	30.0	32.4		mg/L		108	70.6 - 120

**Lab Sample ID:** 580-61788-3 DU  
**Matrix:** Water  
**Analysis Batch:** 225278

**Client Sample ID:** HC002-E2  
**Prep Type:** Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	160		178		mg/L		8	20

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID:** MB 280-339412/4  
**Matrix:** Water  
**Analysis Batch:** 339412

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			08/24/16 16:48	1

**Lab Sample ID:** LCS 280-339412/3  
**Matrix:** Water  
**Analysis Batch:** 339412

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.436	0.441		mg/L		101	80 - 119

**Lab Sample ID:** 580-61788-6 MS  
**Matrix:** Water  
**Analysis Batch:** 339412

**Client Sample ID:** MW510-E2  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND		8.72	9.52		mg/L		109	80 - 119

**Lab Sample ID:** 580-61788-6 MSD  
**Matrix:** Water  
**Analysis Batch:** 339412

**Client Sample ID:** MW510-E2  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND		8.72	9.44		mg/L		108	80 - 119	1	10

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID:** MB 580-225621/1  
**Matrix:** Water  
**Analysis Batch:** 225621

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			08/19/16 18:14	1

**Lab Sample ID:** LCS 580-225621/2  
**Matrix:** Water  
**Analysis Batch:** 225621

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.85		mg/L		99	85 - 115

**Lab Sample ID:** MB 580-225622/1  
**Matrix:** Water  
**Analysis Batch:** 225622

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			08/20/16 06:11	1

**Lab Sample ID:** LCS 580-225622/2  
**Matrix:** Water  
**Analysis Batch:** 225622

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.93		mg/L		99	85 - 115

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID:** MB 580-225432/1  
**Matrix:** Water  
**Analysis Batch:** 225432

**Client Sample ID:** Method Blank  
**Prep Type:** Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			08/19/16 14:48	1

**Lab Sample ID:** LCS 580-225432/2  
**Matrix:** Water  
**Analysis Batch:** 225432

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.9		mg/L		109	85 - 115

**Lab Sample ID:** MB 580-226087/1  
**Matrix:** Water  
**Analysis Batch:** 226087

**Client Sample ID:** Method Blank  
**Prep Type:** Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			08/27/16 15:13	1

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

**Lab Sample ID: LCS 580-226087/2**

**Matrix: Water**

**Analysis Batch: 226087**

**Client Sample ID: Lab Control Sample**

**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.9		mg/L		109	85 - 115

**Lab Sample ID: 580-61788-6 MS**

**Matrix: Water**

**Analysis Batch: 226087**

**Client Sample ID: MW510-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	65		200	277		mg/L		106	85 - 115

**Lab Sample ID: 580-61788-6 MSD**

**Matrix: Water**

**Analysis Batch: 226087**

**Client Sample ID: MW510-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	65		200	288		mg/L		112	85 - 115	4	20

**Lab Sample ID: 580-61788-6 DU**

**Matrix: Water**

**Analysis Batch: 226087**

**Client Sample ID: MW510-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	65		65.7		mg/L		2	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

**Client Sample ID: B-005R-E2**

**Lab Sample ID: 580-61788-1**

**Date Collected: 08/17/16 15:20**

**Matrix: Water**

**Date Received: 08/18/16 08:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			225586	08/22/16 17:13	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	225813	08/24/16 22:57	D1R	TAL SEA
Dissolved	Prep	3005A			225360	08/19/16 09:16	MKN	TAL SEA
Dissolved	Analysis	6020A		5	225502	08/19/16 15:44	HJM	TAL SEA
Total Recoverable	Prep	3005A			225360	08/19/16 09:16	MKN	TAL SEA
Total Recoverable	Analysis	6020A		5	225502	08/19/16 15:36	HJM	TAL SEA
Total/NA	Analysis	SM 2540D		1	225278	08/18/16 10:33	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		20	339412	08/24/16 16:48	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		10	225432	08/19/16 14:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	225621	08/19/16 18:14	Z1T	TAL SEA

**Client Sample ID: B-505R-E2**

**Lab Sample ID: 580-61788-2**

**Date Collected: 08/17/16 16:00**

**Matrix: Water**

**Date Received: 08/18/16 08:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			225586	08/22/16 17:13	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	225813	08/24/16 23:19	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	225278	08/18/16 10:33	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		20	339412	08/24/16 16:48	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		10	225432	08/19/16 14:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	225621	08/19/16 18:14	Z1T	TAL SEA

**Client Sample ID: HC002-E2**

**Lab Sample ID: 580-61788-3**

**Date Collected: 08/17/16 15:30**

**Matrix: Water**

**Date Received: 08/18/16 08:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225360	08/19/16 09:16	MKN	TAL SEA
Dissolved	Analysis	6010C		1	225501	08/19/16 15:28	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225356	08/18/16 13:03	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225361	08/18/16 13:03	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225282	08/18/16 11:37	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	225311	08/18/16 13:29	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225278	08/18/16 10:33	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		20	339412	08/24/16 16:48	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		10	225432	08/19/16 14:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225621	08/19/16 18:14	Z1T	TAL SEA

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

## Client Sample ID: MW008-E2

Lab Sample ID: 580-61788-4

Date Collected: 08/17/16 17:45

Matrix: Water

Date Received: 08/18/16 08:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	225278	08/18/16 10:33	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		20	339412	08/24/16 16:48	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		10	225432	08/19/16 14:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225622	08/20/16 06:11	Z1T	TAL SEA

## Client Sample ID: MW010-E2

Lab Sample ID: 580-61788-5

Date Collected: 08/17/16 15:40

Matrix: Water

Date Received: 08/18/16 08:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225360	08/19/16 09:16	MKN	TAL SEA
Dissolved	Analysis	6010C		1	225501	08/19/16 15:32	HJM	TAL SEA
Dissolved	Prep	3005A			225360	08/19/16 09:16	MKN	TAL SEA
Dissolved	Analysis	6020A		5	225502	08/19/16 15:49	HJM	TAL SEA
Total Recoverable	Prep	3005A			225360	08/19/16 09:16	MKN	TAL SEA
Total Recoverable	Analysis	6020A		5	225502	08/19/16 15:40	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225356	08/18/16 13:22	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225361	08/18/16 13:22	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225282	08/18/16 11:37	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	225311	08/18/16 13:29	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225278	08/18/16 10:33	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		20	339412	08/24/16 16:48	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		10	225432	08/19/16 14:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225622	08/20/16 06:11	Z1T	TAL SEA

## Client Sample ID: MW510-E2

Lab Sample ID: 580-61788-6

Date Collected: 08/17/16 16:00

Matrix: Water

Date Received: 08/18/16 08:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225360	08/19/16 09:16	MKN	TAL SEA
Dissolved	Analysis	6010C		1	225501	08/19/16 15:35	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225356	08/18/16 13:40	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225361	08/18/16 13:40	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225282	08/18/16 11:37	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	225311	08/18/16 13:29	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225278	08/18/16 10:33	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		20	339412	08/24/16 16:48	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		20	226087	08/27/16 15:13	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225622	08/20/16 06:11	Z1T	TAL SEA

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

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# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 2540D		Water	Total Suspended Solids
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-61788-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-61788-1	B-005R-E2	Water	08/17/16 15:20	08/18/16 08:25
580-61788-2	B-505R-E2	Water	08/17/16 16:00	08/18/16 08:25
580-61788-3	HC002-E2	Water	08/17/16 15:30	08/18/16 08:25
580-61788-4	MW008-E2	Water	08/17/16 17:45	08/18/16 08:25
580-61788-5	MW010-E2	Water	08/17/16 15:40	08/18/16 08:25
580-61788-6	MW510-E2	Water	08/17/16 16:00	08/18/16 08:25



Field Sampler(s):  
GSI

### Chain of Custody Record

**GSI**  
55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

**Client Contact**  
Project Name: Parcel 15 - POT  
Project # or PO #: 603.002.012  
Project Manager: Erin Hughes/Cindy Ryals  
Phone #: 971-200-8528 and 971-200-8531  
Report to email: echughes@gsiws.com, cryals@gsiws.com

**For Lab Use Only:**  
SDG: \_\_\_\_\_  
Custody Seals intact?  
Hand delivered?  
Cooler Temp: \_\_\_\_\_ °C  
Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Laboratory**  
TestAmerica  
Brooks

**Lab PM**  
Brooks - Ben Wozniak - 206-753-6158

**Analysis Turnaround Time:**  
Standard 21 day TAT on Most Analyses  
Rush 5 day on Dissolved Metals in Porewater

**Analysis Requested**

SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1000W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)
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TestAmerica - Christabel Escarez - 253.248.4975

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1000W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
B-005R-EZ	8/11/16	1520	580.5	G	N	10	X	X	X	X						X	X	X	X	X		
B-505R-EZ		1600	580			8	X	X	X								X	X	X			
H002-EZ		1530	1216			12	X	X	X	X	X	X	X	X						X	X	X
MW00B-EZ		1745	2254			6	X	X	X											X	X	
MN010-EZ		1540	1367			13	X	X	X	X	X	X	X	X	X	X				X	X	X
MN 510-EZ		1600	1367			12	X	X	X	X	X	X	X	X						X	X	X



TB A2 Cooler Cor 2.0 Unc 2.2 - TB Cooler IR2 Cor 0.8 Unc 0.9  
Cooler Dsc 1 g B/w @ Lab - Cooler Dsc 1 g G/B @ Lab  
Wet Packs Packing other - Wet Packs Packing other  
Cl: do w/o - Cl: do w/o

**Possible Hazard Identification:**  
Are samples hazardous?  No  
If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
Relinquished by: Renee Foster GSI Date/Time: 8/18/16 0825  
Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
Received by: B. Full SEATA Date/Time: 8/18/16 0825  
Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Special Instructions/QC Requirements**  
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
Please contact Cindy Ryals at 971-200-8531 with any questions.

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Lab PM: Escarez, Christiabel C		COC No: 580-40227.1					
Company: TestAmerica Laboratories, Inc.		E-Mail: christiabel.escarez@testamericainc.com		Page: Page 1 of 1					
Address: 4955 Yarrow Street, Arvada, CO 80002		Phone: 303-736-0100(Tel) 303-431-7171(Fax)		Job #: 580-61788-1					
Due Date Requested: 9/3/2016		TAT Requested (days):		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anichlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)					
Project Name: Parcel 15 - POT		Project #: 58009703		Analysis Requested					
Site:		SSOW#:		Total Number of containers					
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, BT=Tissue, A=Air)	Field Filled Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_S2_D/FIELD_FLTRD Dissolved Sulfide, field-filtered	Special Instructions/Note:	
B-005R-E2 (580-61788-1)	8/17/16	15:20 Pacific	Water	Water	X	X			
B-505R-E2 (580-61788-2)	8/17/16	16:00 Pacific	Water	Water	X	X			
HC002-E2 (580-61788-3)	8/17/16	15:30 Pacific	Water	Water	X	X			
MW008-E2 (580-61788-4)	8/17/16	17:45 Pacific	Water	Water	X	X			
MW010-E2 (580-61788-5)	8/17/16	15:40 Pacific	Water	Water	X	X			
MW510-E2 (580-61788-6)	8/17/16	16:00 Pacific	Water	Water	X	X			
<b>Possible Hazard Identification</b>									
Unconfirmed									
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2									
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)									
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Special Instructions/QC Requirements:									
Empty Kit Relinquished by:									
Relinquished by: Tom J. [Signature]		Date: 8/18/16		Company: TA-Sea		Received by: Reed [Signature]		Date/Time: 8-19-16 6930	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 2.4 If 5.0 Transfer RP 8-19-16		Company: TAD		Company:	





## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-61788-1

**Login Number: 61788**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-61788-1

**Login Number: 61788**

**List Number: 2**

**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**

**List Creation: 08/19/16 02:39 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-61813-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Cindy Ryals



Authorized for release by:  
8/30/2016 4:11:51 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

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**Job ID: 580-61813-1**

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**Laboratory: TestAmerica Seattle**

## Narrative

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**Job Narrative**  
**580-61813-1**

## Comments

No additional comments.

## Receipt

The samples were received on 8/18/2016 2:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.6° C and 4.7° C.

## General Chemistry

Method(s) SM 4500 S2 D: The following samples were diluted due to the nature of the sample matrix based on dark color of sample.: B003R-E2 (580-61813-1), B006R-E2 (580-61813-2), MW011-E2 (580-61813-3), MW012-E2 (580-61813-4), B001R-E2 (580-61813-5), MW013-E2 (580-61813-6) and (580-61788-E-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

**Client Sample ID: B003R-E2**

**Lab Sample ID: 580-61813-1**

**Date Collected: 08/18/16 10:10**

**Matrix: Water**

**Date Received: 08/18/16 14:15**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>49</b>		20	3.8	mg/L			08/20/16 06:11	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>4.2</b>		2.0	2.0	mg/L			08/19/16 10:14	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		1.0	0.14	mg/L			08/24/16 16:48	20
<b>Dissolved Organic Carbon</b>	<b>59</b>		20	3.8	mg/L			08/27/16 15:13	20



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

**Client Sample ID: B006R-E2**

**Lab Sample ID: 580-61813-2**

**Date Collected: 08/18/16 11:35**

**Matrix: Water**

**Date Received: 08/18/16 14:15**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>98</b>		20	3.8	mg/L			08/20/16 06:11	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>2.8</b>		2.0	2.0	mg/L			08/19/16 10:14	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		1.0	0.14	mg/L			08/24/16 16:48	20
<b>Dissolved Organic Carbon</b>	<b>110</b>		20	3.8	mg/L			08/27/16 15:13	20





# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

**Client Sample ID: MW011-E2**

**Lab Sample ID: 580-61813-3**

**Date Collected: 08/18/16 11:40**

**Matrix: Water**

**Date Received: 08/18/16 14:15**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>62</b>		20	3.8	mg/L			08/20/16 06:11	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>1200</b>		10	10	mg/L			08/19/16 10:14	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		1.0	0.14	mg/L			08/24/16 16:48	20
<b>Dissolved Organic Carbon</b>	<b>64</b>		20	3.8	mg/L			08/27/16 15:13	20

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

**Client Sample ID: MW012-E2**

**Lab Sample ID: 580-61813-4**

Date Collected: 08/18/16 09:55

Matrix: Water

Date Received: 08/18/16 14:15

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	64		1.1	0.023	mg/L		08/19/16 09:16	08/19/16 15:39	1
Magnesium	63		1.1	0.13	mg/L		08/19/16 09:16	08/19/16 15:39	1
Potassium	55		3.3	0.15	mg/L		08/19/16 09:16	08/19/16 15:39	1
Sodium	310		2.0	0.55	mg/L		08/19/16 09:16	08/19/16 15:39	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	75		20	3.8	mg/L			08/20/16 06:11	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	37		4.0	4.0	mg/L			08/19/16 10:14	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1.2		0.20	0.030	mg/L			08/18/16 18:25	1
Nitrite as N	ND		0.40	0.080	mg/L			08/18/16 18:25	1
Chloride	190	^	9.0	0.40	mg/L			08/19/16 09:21	10
Nitrate as N	ND		0.20	0.020	mg/L			08/18/16 18:25	1
Bromide	1.7	F1 F2	0.50	0.060	mg/L			08/18/16 18:25	1
Sulfate	ND		1.2	0.26	mg/L			08/18/16 18:25	1
Sulfide	ND		1.0	0.14	mg/L			08/24/16 16:48	20
Dissolved Organic Carbon	84		20	3.8	mg/L			08/27/16 15:13	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.10		0.10	0.10	mg/L			08/18/16 17:32	1
Alkalinity	920		5.0	5.0	mg/L			08/24/16 11:29	1
Bicarbonate Alkalinity as CaCO3	920		5.0	5.0	mg/L			08/24/16 11:29	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/24/16 11:29	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/24/16 11:29	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

**Client Sample ID: B001R-E2**

**Lab Sample ID: 580-61813-5**

Date Collected: 08/18/16 09:15

Matrix: Water

Date Received: 08/18/16 14:15

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110		1.1	0.023	mg/L		08/19/16 09:16	08/19/16 15:42	1
Magnesium	52		1.1	0.13	mg/L		08/19/16 09:16	08/19/16 15:42	1
Potassium	52		3.3	0.15	mg/L		08/19/16 09:16	08/19/16 15:42	1
Sodium	100		2.0	0.55	mg/L		08/19/16 09:16	08/19/16 15:42	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	94		20	3.8	mg/L			08/20/16 06:11	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	25		4.0	4.0	mg/L			08/19/16 10:14	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.69		0.20	0.030	mg/L			08/18/16 19:38	1
Nitrite as N	ND		0.40	0.080	mg/L			08/18/16 19:38	1
Chloride	42		0.90	0.040	mg/L			08/18/16 19:38	1
Nitrate as N	ND		0.20	0.020	mg/L			08/18/16 19:38	1
Bromide	ND		0.50	0.060	mg/L			08/18/16 19:38	1
Sulfate	ND		1.2	0.26	mg/L			08/18/16 19:38	1
Sulfide	ND		1.0	0.14	mg/L			08/24/16 16:48	20
Dissolved Organic Carbon	110		20	3.8	mg/L			08/27/16 15:13	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	1.9		0.10	0.10	mg/L			08/18/16 17:32	1
Alkalinity	750		5.0	5.0	mg/L			08/24/16 11:29	1
Bicarbonate Alkalinity as CaCO3	750		5.0	5.0	mg/L			08/24/16 11:29	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/24/16 11:29	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/24/16 11:29	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

**Client Sample ID: MW013-E2**

**Lab Sample ID: 580-61813-6**

Date Collected: 08/18/16 11:00

Matrix: Water

Date Received: 08/18/16 14:15

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100		1.1	0.023	mg/L		08/19/16 09:16	08/19/16 15:46	1
Magnesium	25		1.1	0.13	mg/L		08/19/16 09:16	08/19/16 15:46	1
Potassium	22		3.3	0.15	mg/L		08/19/16 09:16	08/19/16 15:46	1
Sodium	68		2.0	0.55	mg/L		08/19/16 09:16	08/19/16 15:46	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	42		20	3.8	mg/L			08/20/16 06:11	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	130		10	10	mg/L			08/19/16 10:14	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.22		0.20	0.030	mg/L			08/18/16 20:33	1
Nitrite as N	ND		0.40	0.080	mg/L			08/18/16 20:33	1
Chloride	9.0		0.90	0.040	mg/L			08/18/16 20:33	1
Nitrate as N	ND		0.20	0.020	mg/L			08/18/16 20:33	1
Bromide	ND		0.50	0.060	mg/L			08/18/16 20:33	1
Sulfate	ND		1.2	0.26	mg/L			08/18/16 20:33	1
Sulfide	ND		1.0	0.14	mg/L			08/24/16 16:48	20
Dissolved Organic Carbon	46		20	3.8	mg/L			08/27/16 15:13	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	1.8		0.10	0.10	mg/L			08/18/16 17:32	1
Alkalinity	620		5.0	5.0	mg/L			08/26/16 12:56	1
Bicarbonate Alkalinity as CaCO3	620		5.0	5.0	mg/L			08/26/16 12:56	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/26/16 12:56	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/26/16 12:56	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-225360/17-A**  
**Matrix: Water**  
**Analysis Batch: 225501**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225360**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		08/19/16 09:16	08/19/16 14:44	1
Magnesium	ND		1.1	0.13	mg/L		08/19/16 09:16	08/19/16 14:44	1
Potassium	ND		3.3	0.15	mg/L		08/19/16 09:16	08/19/16 14:44	1
Sodium	ND		2.0	0.55	mg/L		08/19/16 09:16	08/19/16 14:44	1

**Lab Sample ID: LCS 580-225360/18-A**  
**Matrix: Water**  
**Analysis Batch: 225501**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225360**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	21.9		mg/L		110	80 - 120
Magnesium	20.0	21.8		mg/L		109	80 - 120
Potassium	20.0	21.5		mg/L		108	80 - 120
Sodium	20.0	21.8		mg/L		109	80 - 120

**Lab Sample ID: LCSD 580-225360/19-A**  
**Matrix: Water**  
**Analysis Batch: 225501**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225360**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	20.0	21.3		mg/L		107	80 - 120	3	20
Magnesium	20.0	21.1		mg/L		106	80 - 120	3	20
Potassium	20.0	21.1		mg/L		105	80 - 120	2	20
Sodium	20.0	21.3		mg/L		107	80 - 120	2	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 580-225378/3**  
**Matrix: Water**  
**Analysis Batch: 225378**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.080	mg/L			08/18/16 17:29	1
Nitrate as N	ND		0.20	0.020	mg/L			08/18/16 17:29	1

**Lab Sample ID: LCS 580-225378/4**  
**Matrix: Water**  
**Analysis Batch: 225378**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	5.00	5.21		mg/L		104	90 - 110
Nitrate as N	5.00	5.18		mg/L		104	90 - 110

**Lab Sample ID: LCSD 580-225378/5**  
**Matrix: Water**  
**Analysis Batch: 225378**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Nitrite as N	5.00	5.22		mg/L		104	90 - 110	0	15

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCSD 580-225378/5**

**Matrix: Water**

**Analysis Batch: 225378**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	5.00	5.21		mg/L		104	90 - 110	1	15

**Lab Sample ID: MB 580-225379/3**

**Matrix: Water**

**Analysis Batch: 225379**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			08/18/16 17:29	1
Chloride	ND		0.90	0.040	mg/L			08/18/16 17:29	1
Bromide	ND		0.50	0.060	mg/L			08/18/16 17:29	1
Sulfate	ND		1.2	0.26	mg/L			08/18/16 17:29	1

**Lab Sample ID: LCS 580-225379/4**

**Matrix: Water**

**Analysis Batch: 225379**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	5.33		mg/L		107	90 - 110
Chloride	50.0	52.2		mg/L		104	90 - 110
Bromide	10.0	10.9		mg/L		109	90 - 110
Sulfate	50.0	51.5		mg/L		103	90 - 110

**Lab Sample ID: LCSD 580-225379/5**

**Matrix: Water**

**Analysis Batch: 225379**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	5.33		mg/L		107	90 - 110	0	15
Chloride	50.0	52.4		mg/L		105	90 - 110	0	15
Bromide	10.0	10.9		mg/L		109	90 - 110	0	15
Sulfate	50.0	51.6		mg/L		103	90 - 110	0	15

**Lab Sample ID: 580-61813-4 MS**

**Matrix: Water**

**Analysis Batch: 225378**

**Client Sample ID: MW012-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	ND		5.00	4.72		mg/L		94	90 - 110
Nitrate as N	ND		5.00	5.10		mg/L		102	90 - 110

**Lab Sample ID: 580-61813-4 MSD**

**Matrix: Water**

**Analysis Batch: 225378**

**Client Sample ID: MW012-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	ND		5.00	4.62		mg/L		92	90 - 110	2	15
Nitrate as N	ND		5.00	4.57		mg/L		91	90 - 110	11	15

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 580-61813-4 DU**

**Matrix: Water**

**Analysis Batch: 225378**

**Client Sample ID: MW012-E2**

**Prep Type: Dissolved**

Analyte	Sample	Sample	DU		Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Nitrite as N	ND		ND		mg/L		NC	10
Nitrate as N	ND		ND		mg/L		NC	10

**Lab Sample ID: 580-61813-4 MS**

**Matrix: Water**

**Analysis Batch: 225379**

**Client Sample ID: MW012-E2**

**Prep Type: Dissolved**

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
Fluoride	1.2		5.00	6.50		mg/L		106	90 - 110
Chloride	210		50.0	253	4	mg/L		88	90 - 110
Bromide	1.7	F1 F2	5.00	6.77		mg/L		102	90 - 110
Sulfate	ND		50.0	51.9		mg/L		104	90 - 110

**Lab Sample ID: 580-61813-4 MSD**

**Matrix: Water**

**Analysis Batch: 225379**

**Client Sample ID: MW012-E2**

**Prep Type: Dissolved**

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec. Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Fluoride	1.2		5.00	6.26		mg/L		101	90 - 110	4	15
Chloride	210		50.0	251	4	mg/L		85	90 - 110	1	15
Bromide	1.7	F1 F2	5.00	5.29	F1 F2	mg/L		73	90 - 110	25	15
Sulfate	ND		50.0	50.7		mg/L		101	90 - 110	2	15

**Lab Sample ID: 580-61813-4 DU**

**Matrix: Water**

**Analysis Batch: 225379**

**Client Sample ID: MW012-E2**

**Prep Type: Dissolved**

Analyte	Sample	Sample	DU		Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Fluoride	1.2		1.24		mg/L		2	10
Bromide	1.7	F1 F2	1.65		mg/L		0.6	10
Sulfate	ND		ND		mg/L		NC	10

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID: MB 580-225349/1**

**Matrix: Water**

**Analysis Batch: 225349**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB	MB	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
ortho-Phosphate	ND		0.10	0.10	mg/L			08/18/16 17:32	1

**Lab Sample ID: LCS 580-225349/2**

**Matrix: Water**

**Analysis Batch: 225349**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	2.05		mg/L		103	90 - 110

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

## Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 580-225776/2  
Matrix: Water  
Analysis Batch: 225776

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	102		mg/L		102	85 - 115

Lab Sample ID: LCS 580-226000/2  
Matrix: Water  
Analysis Batch: 226000

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	99.8		mg/L		100	85 - 115

Lab Sample ID: 580-61813-6 DU  
Matrix: Water  
Analysis Batch: 226000

Client Sample ID: MW013-E2  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	620		581		mg/L		6	17
Bicarbonate Alkalinity as CaCO3	620		581		mg/L		6	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Hydroxide Alkalinity as CaCO3	ND		ND		mg/L		NC	20

## Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 580-225374/1  
Matrix: Water  
Analysis Batch: 225374

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			08/19/16 10:14	1

Lab Sample ID: LCS 580-225374/2  
Matrix: Water  
Analysis Batch: 225374

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	30.0	25.2		mg/L		84	70.6 - 120

Lab Sample ID: 580-61813-1 DU  
Matrix: Water  
Analysis Batch: 225374

Client Sample ID: B003R-E2  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	4.2		2.40	F5	mg/L		55	20



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

## Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-339412/4  
Matrix: Water  
Analysis Batch: 339412

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			08/24/16 16:48	1

Lab Sample ID: LCS 280-339412/3  
Matrix: Water  
Analysis Batch: 339412

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.436	0.441		mg/L		101	80 - 119

## Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-225622/1  
Matrix: Water  
Analysis Batch: 225622

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			08/20/16 06:11	1

Lab Sample ID: LCS 580-225622/2  
Matrix: Water  
Analysis Batch: 225622

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.93		mg/L		99	85 - 115

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

Lab Sample ID: MB 580-226087/1  
Matrix: Water  
Analysis Batch: 226087

Client Sample ID: Method Blank  
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			08/27/16 15:13	1

Lab Sample ID: LCS 580-226087/2  
Matrix: Water  
Analysis Batch: 226087

Client Sample ID: Lab Control Sample  
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.9		mg/L		109	85 - 115

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

## Client Sample ID: B003R-E2

Lab Sample ID: 580-61813-1

Date Collected: 08/18/16 10:10

Matrix: Water

Date Received: 08/18/16 14:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	225374	08/19/16 10:14	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		20	339412	08/24/16 16:48	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		20	226087	08/27/16 15:13	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225622	08/20/16 06:11	Z1T	TAL SEA

## Client Sample ID: B006R-E2

Lab Sample ID: 580-61813-2

Date Collected: 08/18/16 11:35

Matrix: Water

Date Received: 08/18/16 14:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	225374	08/19/16 10:14	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		20	339412	08/24/16 16:48	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		20	226087	08/27/16 15:13	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225622	08/20/16 06:11	Z1T	TAL SEA

## Client Sample ID: MW011-E2

Lab Sample ID: 580-61813-3

Date Collected: 08/18/16 11:40

Matrix: Water

Date Received: 08/18/16 14:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	225374	08/19/16 10:14	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		20	339412	08/24/16 16:48	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		20	226087	08/27/16 15:13	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225622	08/20/16 06:11	Z1T	TAL SEA

## Client Sample ID: MW012-E2

Lab Sample ID: 580-61813-4

Date Collected: 08/18/16 09:55

Matrix: Water

Date Received: 08/18/16 14:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225360	08/19/16 09:16	MKN	TAL SEA
Dissolved	Analysis	6010C		1	225501	08/19/16 15:39	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225378	08/18/16 18:25	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225379	08/18/16 18:25	RSB	TAL SEA
Dissolved	Analysis	300.0		10	225379	08/19/16 09:21	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225349	08/18/16 17:32	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	225776	08/24/16 11:29	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225374	08/19/16 10:14	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		20	339412	08/24/16 16:48	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		20	226087	08/27/16 15:13	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225622	08/20/16 06:11	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

**Client Sample ID: B001R-E2**

**Lab Sample ID: 580-61813-5**

**Date Collected: 08/18/16 09:15**

**Matrix: Water**

**Date Received: 08/18/16 14:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225360	08/19/16 09:16	MKN	TAL SEA
Dissolved	Analysis	6010C		1	225501	08/19/16 15:42	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225378	08/18/16 19:38	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225379	08/18/16 19:38	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225349	08/18/16 17:32	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	225776	08/24/16 11:29	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225374	08/19/16 10:14	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		20	339412	08/24/16 16:48	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		20	226087	08/27/16 15:13	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225622	08/20/16 06:11	Z1T	TAL SEA

**Client Sample ID: MW013-E2**

**Lab Sample ID: 580-61813-6**

**Date Collected: 08/18/16 11:00**

**Matrix: Water**

**Date Received: 08/18/16 14:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			225360	08/19/16 09:16	MKN	TAL SEA
Dissolved	Analysis	6010C		1	225501	08/19/16 15:46	HJM	TAL SEA
Dissolved	Analysis	300.0		1	225378	08/18/16 20:33	RSB	TAL SEA
Dissolved	Analysis	300.0		1	225379	08/18/16 20:33	RSB	TAL SEA
Dissolved	Analysis	365.1		1	225349	08/18/16 17:32	SPP	TAL SEA
Dissolved	Analysis	SM 2320B		1	226000	08/26/16 12:56	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	225374	08/19/16 10:14	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		20	339412	08/24/16 16:48	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		20	226087	08/27/16 15:13	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	225622	08/20/16 06:11	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 2540D		Water	Total Suspended Solids
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-61813-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-61813-1	B003R-E2	Water	08/18/16 10:10	08/18/16 14:15
580-61813-2	B006R-E2	Water	08/18/16 11:35	08/18/16 14:15
580-61813-3	MW011-E2	Water	08/18/16 11:40	08/18/16 14:15
580-61813-4	MW012-E2	Water	08/18/16 09:55	08/18/16 14:15
580-61813-5	B001R-E2	Water	08/18/16 09:15	08/18/16 14:15
580-61813-6	MW013-E2	Water	08/18/16 11:00	08/18/16 14:15



61813

55 SW Yamhill St, Suite 300 Portland, Oregon 97204 503.239.8700	<h2 style="margin: 0;">Chain of Custody Record</h2>	Field Sampler(s): <div style="border: 1px solid black; padding: 2px; display: inline-block;">GSI</div>
---	---	---

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>	<b>Lab PM</b>
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>	<b>Brooks</b>
Project # or PO #: 603.002.012	Custody Seals intact?	<b>Analysis Requested</b>	
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	SM5310B: Total Organic Carbon SM5310B: Dissolved Organic Carbon (field filtered) SM4500 S 2D: Sulfide (dissolved; field filtered) SM2540D: Total Suspended Solids (TSS) 6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)* 300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)** 300.0: Nitrate and Nitrite (dissolved; field filtered) SM2320B: Alkalinity (field filtered)*** 365.1: Major Anions (Orthophosphate; dissolved; field filtered) 6020A: Arsenic (total) 6020A: Arsenic, Iron, and Manganese (dissolved; field filtered) 8260D SIM: Pentachlorophenol 1638M: Arsenic (total) 1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)*** Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C		
Report to email: echughes@gsiws.com, cryals@gsiws.com	Therm ID No.: _____ Therm Exp. _____		
<b>Analysis Turnaround Time:</b>			
Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater		Brooks- Ben Wozniak-206-753-6158  TestAmerica - Christabel Escarez-253.248.4975	

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
B003R-E2	8/18/16	1010	4286	G	N		X	X	X	X									X	X		
B006R-E2		1135	2367				X	X	X	X									X	X		
MW011-E2		1140	2118				X	X	X	X									X	X		
MW012-E2		955	2358				X	X	X	X	X	X	X	X	X				X	X	X	
B001R-E2		915	1538				X	X	X	X	X	X	X	X	X				X	X	X	
MW013-E2		1100	1231				X	X	X	X	X	X	X	X	X				X	X	X	

TBA Cooler Cor 1.6 Unc 1.8 TB Cooler Cor 4.7 Unc 4.8  
 Cooler Dsc 1g B/W @ Lab Cooler Dsc 1g Rys @ Lab  
 Wet/Packs Packing other Wet/Packs Packing other  
 Cli do w/o Gli do w/o

<b>Possible Hazard Identification:</b> Are samples hazardous? <input checked="" type="checkbox"/> No If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic select hazard(s): Relinquished by: <u>Vene for GSI</u> Date/Time: <u>8/18/16 1415</u>	<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b> <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year Received by: <u>B. Hall SEA TA</u> Date/Time: <u>8.18.16 1415</u>
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____	Received in Laboratory by: _____ Date/Time: _____

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



Chain of Custody Record

<b>Client Information (Sub Contract Lab)</b> Sampler: _____ Lab PM: Escarez, Christabel C Shipping/Receiving: _____ E-Mail: christabel.escarez@testamerica.com		COC No: 580-40256.1 Page: Page 1 of 1 Job #: 580-61813-1					
Company: TestAmerica Laboratories, Inc. Address: 4955 Yarrow Street, City: Arvada State, Zip: CO, 80002 Phone: 303-736-0100(Tel) 303-431-7171(Fax) Email: _____ Project Name: Parcel 15 RI Site: _____		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - MeOH T - TSP Dodecahydrate U - Ice V - MCAA W - pH 4-5 X - EDTA L - Other (specify)					
Due Date Requested: 9/3/2016 TAT Requested (days): _____ PO #: _____ W/O #: _____ Project #: 58009703 SSOW#: _____		Analysis Requested: _____ Total Number of Containers: _____					
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, D=wastefill, L=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500, S2, D/FIELD, FLTRD Dissolved Sulfide, field-filtered
B003R-E2 (580-61813-1)	8/18/16	10:10 Pacific	Water	Water	X		
B006R-E2 (580-61813-2)	8/18/16	11:35 Pacific	Water	Water	X		
MW011-E2 (580-61813-3)	8/18/16	11:40 Pacific	Water	Water	X		
MW012-E2 (580-61813-4)	8/18/16	09:55 Pacific	Water	Water	X		
B001R-E2 (580-61813-5)	8/18/16	09:15 Pacific	Water	Water	X		
MW013-E2 (580-61813-6)	8/18/16	11:00 Pacific	Water	Water	X		
Special Instructions/Note: _____							
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) _____							
Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Special Instructions/QC Requirements: _____							
Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____							
Relinquished by: <i>B. Hull</i> Date/Time: 8/19/16 17:16 Company: SEATA Relinquished by: _____ Date/Time: _____ Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____							
Custody Seals Intact: _____ Custody Seal No.: _____ Δ Yes Δ No							



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-61813-1

**Login Number: 61813**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Blankinship, Tom X**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-61813-1

**Login Number: 61813**

**List Number: 2**

**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**

**List Creation: 08/20/16 10:51 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-62103-1

Client Project/Site: Parcel 15 RI-POT

For:

GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Cindy Ryals



Authorized for release by:  
9/19/2016 12:39:30 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

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results through  
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[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Job ID: 580-62103-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-62103-1

#### Receipt

The samples were received on 8/30/2016 4:05 PM; the samples arrived in good condition and properly preserved. The temperatures of the 3 coolers at receipt time were 10.0° C, 12.6° C and 16.3° C. The temperature is considered acceptable as the samples were received by the laboratory on the same day of collection and there is evidence the chilling process has begun.

#### GC/MS Semi VOA

Method(s) 8270D SIM: The method blank for preparation batch 580-226783 and analytical batch 580-227036 contained Pentachlorophenol above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0: Due to high chloride content, dilutions were performed on the following samples to prevent damage to the instrument: WCTPW001A-10-E2 (580-62103-1), WCTPW001A-40-E2 (580-62103-2), WCTPW001B-10-E2 (580-62103-3), WCTPW001B-40-E2 (580-62103-4), WCTPW002A-10-E2 (580-62103-5), WCTPW002A-40-E2 (580-62103-6), WCTPW002B-10-E2 (580-62103-7), WCTPW002B-40-E2 (580-62103-8), WCTPW003A-40-E2 (580-62103-9), WCTPW003B-10-E2 (580-62103-10), WCTPW003B-40-E2 (580-62103-11), (580-62103-F-1 MS) and (580-62103-F-1 MSD). Some analytes may have been diluted out of the sample.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW001A-10-E2**

**Lab Sample ID: 580-62103-1**

**Date Collected: 08/30/16 10:30**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Sulfate</b>	<b>1400</b>		600	130	mg/L			09/08/16 15:47	500
<b>Total Organic Carbon</b>	<b>20</b>		1.0	0.19	mg/L			09/14/16 19:08	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>290</b>		20	20	mg/L			08/31/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		200	30	mg/L			08/31/16 12:40	1000
Nitrite as N	ND		400	80	mg/L			08/31/16 12:40	1000
<b>Chloride</b>	<b>23000</b>		900	40	mg/L			08/31/16 12:40	1000
Nitrate as N	ND		200	20	mg/L			08/31/16 12:40	1000
Bromide	ND		500	60	mg/L			08/31/16 12:40	1000
<b>Sulfate</b>	<b>3900</b>		1200	260	mg/L			08/31/16 12:40	1000
Sulfide	ND		0.050	0.0070	mg/L			09/02/16 14:23	1
<b>Dissolved Organic Carbon</b>	<b>13</b>		1.0	0.19	mg/L			09/15/16 11:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 09:24	1
<b>Alkalinity</b>	<b>75</b>		5.0	5.0	mg/L			08/31/16 14:04	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>75</b>		5.0	5.0	mg/L			08/31/16 14:04	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW001A-40-E2**

**Lab Sample ID: 580-62103-2**

**Date Collected: 08/30/16 10:00**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Sulfate</b>	<b>160</b>		12	2.6	mg/L			09/08/16 16:05	10
<b>Total Organic Carbon</b>	<b>20</b>		2.0	0.38	mg/L			09/14/16 19:08	2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>310</b>		20	20	mg/L			08/31/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			08/31/16 11:33	1
Nitrite as N	ND		40	8.0	mg/L			08/31/16 12:59	100
<b>Chloride</b>	<b>670</b>		90	4.0	mg/L			08/31/16 12:59	100
Nitrate as N	ND		20	2.0	mg/L			08/31/16 12:59	100
Bromide	ND		0.50	0.060	mg/L			08/31/16 11:33	1
<b>Sulfate</b>	<b>95</b>		1.2	0.26	mg/L			08/31/16 11:33	1
<b>Sulfide</b>	<b>0.083</b>		0.050	0.0070	mg/L			09/02/16 14:23	1
<b>Dissolved Organic Carbon</b>	<b>18</b>		1.0	0.19	mg/L			09/15/16 11:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 09:24	1
<b>Alkalinity</b>	<b>440</b>		5.0	5.0	mg/L			08/31/16 14:04	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>440</b>		5.0	5.0	mg/L			08/31/16 14:04	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW001B-10-E2**

**Lab Sample ID: 580-62103-3**

**Date Collected: 08/30/16 09:17**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Sulfate</b>	<b>1700</b>		600	130	mg/L			09/08/16 16:24	500
<b>Total Organic Carbon</b>	<b>11</b>		1.0	0.19	mg/L			09/14/16 19:08	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>110</b>		10	10	mg/L			08/31/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		200	30	mg/L			08/31/16 13:17	1000
Nitrite as N	ND		400	80	mg/L			08/31/16 13:17	1000
<b>Chloride</b>	<b>7100</b>		900	40	mg/L			08/31/16 13:17	1000
Nitrate as N	ND		200	20	mg/L			08/31/16 13:17	1000
Bromide	ND		500	60	mg/L			08/31/16 13:17	1000
<b>Sulfate</b>	<b>1600</b>		1200	260	mg/L			08/31/16 13:17	1000
Sulfide	ND		0.050	0.0070	mg/L			09/02/16 14:23	1
<b>Dissolved Organic Carbon</b>	<b>9.8</b>		1.0	0.19	mg/L			09/15/16 11:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 09:24	1
<b>Alkalinity</b>	<b>150</b>		5.0	5.0	mg/L			08/31/16 14:04	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>150</b>		5.0	5.0	mg/L			08/31/16 14:04	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW001B-40-E2**

**Lab Sample ID: 580-62103-4**

Date Collected: 08/30/16 09:00

Matrix: Water

Date Received: 08/30/16 16:05

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	330		120	26	mg/L			09/08/16 16:42	100
Total Organic Carbon	10		1.0	0.19	mg/L			09/14/16 19:08	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	380		20	20	mg/L			08/31/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		200	30	mg/L			08/31/16 13:35	1000
Nitrite as N	ND		400	80	mg/L			08/31/16 13:35	1000
Chloride	3400		900	40	mg/L			08/31/16 13:35	1000
Nitrate as N	ND		200	20	mg/L			08/31/16 13:35	1000
Bromide	ND		500	60	mg/L			08/31/16 13:35	1000
Sulfate	990	J	1200	260	mg/L			08/31/16 13:35	1000
Sulfide	0.055		0.050	0.0070	mg/L			09/02/16 14:23	1
Dissolved Organic Carbon	11		1.0	0.19	mg/L			09/15/16 11:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 09:24	1
Alkalinity	310		5.0	5.0	mg/L			08/31/16 14:04	1
Bicarbonate Alkalinity as CaCO3	310		5.0	5.0	mg/L			08/31/16 14:04	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW002A-10-E2**

**Lab Sample ID: 580-62103-5**

**Date Collected: 08/30/16 12:30**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Sulfate</b>	<b>2100</b>		600	130	mg/L			09/08/16 17:00	500
<b>Total Organic Carbon</b>	<b>2.4</b>		1.0	0.19	mg/L			09/14/16 19:08	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>80</b>		4.0	4.0	mg/L			08/31/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		200	30	mg/L			08/31/16 14:31	1000
Nitrite as N	ND		400	80	mg/L			08/31/16 14:31	1000
<b>Chloride</b>	<b>12000</b>		900	40	mg/L			08/31/16 14:31	1000
Nitrate as N	ND		200	20	mg/L			08/31/16 14:31	1000
Bromide	ND		500	60	mg/L			08/31/16 14:31	1000
<b>Sulfate</b>	<b>2500</b>		1200	260	mg/L			08/31/16 14:31	1000
Sulfide	ND		0.050	0.0070	mg/L			09/02/16 14:23	1
<b>Dissolved Organic Carbon</b>	<b>2.2</b>		1.0	0.19	mg/L			09/15/16 11:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 09:24	1
<b>Alkalinity</b>	<b>110</b>		5.0	5.0	mg/L			08/31/16 14:04	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>110</b>		5.0	5.0	mg/L			08/31/16 14:04	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW002A-40-E2**

**Lab Sample ID: 580-62103-6**

**Date Collected: 08/30/16 11:50**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Sulfate</b>	<b>2000</b>		600	130	mg/L			09/08/16 17:19	500
<b>Total Organic Carbon</b>	<b>3.3</b>		1.0	0.19	mg/L			09/15/16 11:41	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>330</b>		4.0	4.0	mg/L			08/31/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		200	30	mg/L			08/31/16 14:49	1000
Nitrite as N	ND		400	80	mg/L			08/31/16 14:49	1000
<b>Chloride</b>	<b>11000</b>		900	40	mg/L			08/31/16 14:49	1000
Nitrate as N	ND		200	20	mg/L			08/31/16 14:49	1000
Bromide	ND		500	60	mg/L			08/31/16 14:49	1000
<b>Sulfate</b>	<b>2200</b>		1200	260	mg/L			08/31/16 14:49	1000
<b>Sulfide</b>	<b>0.16</b>		0.050	0.0070	mg/L			09/02/16 14:23	1
<b>Dissolved Organic Carbon</b>	<b>2.9</b>		1.0	0.19	mg/L			09/15/16 11:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 09:24	1
<b>Alkalinity</b>	<b>80</b>		5.0	5.0	mg/L			08/31/16 14:04	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>80</b>		5.0	5.0	mg/L			08/31/16 14:04	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW002B-10-E2**

**Lab Sample ID: 580-62103-7**

**Date Collected: 08/30/16 11:30**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Sulfate</b>	<b>1500</b>		600	130	mg/L			09/08/16 17:38	500
<b>Total Organic Carbon</b>	<b>4.2</b>		1.0	0.19	mg/L			09/15/16 11:41	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>72</b>		4.0	4.0	mg/L			08/31/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		200	30	mg/L			08/31/16 15:07	1000
Nitrite as N	ND		400	80	mg/L			08/31/16 15:07	1000
<b>Chloride</b>	<b>9900</b>		900	40	mg/L			08/31/16 15:07	1000
Nitrate as N	ND		200	20	mg/L			08/31/16 15:07	1000
Bromide	ND		500	60	mg/L			08/31/16 15:07	1000
<b>Sulfate</b>	<b>2100</b>		1200	260	mg/L			08/31/16 15:07	1000
<b>Sulfide</b>	<b>0.22</b>		0.050	0.0070	mg/L			09/02/16 14:23	1
<b>Dissolved Organic Carbon</b>	<b>2.2</b>		1.0	0.19	mg/L			09/15/16 11:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 09:24	1
<b>Alkalinity</b>	<b>68</b>		5.0	5.0	mg/L			08/31/16 14:04	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>68</b>		5.0	5.0	mg/L			08/31/16 14:04	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW002B-40-E2**

**Lab Sample ID: 580-62103-8**

**Date Collected: 08/30/16 11:15**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Sulfate</b>	<b>1700</b>		600	130	mg/L			09/08/16 17:56	500
<b>Total Organic Carbon</b>	<b>3.3</b>		1.0	0.19	mg/L			09/15/16 11:41	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>270</b>		5.0	5.0	mg/L			08/31/16 10:03	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		200	30	mg/L			08/31/16 15:26	1000
Nitrite as N	ND		400	80	mg/L			08/31/16 15:26	1000
<b>Chloride</b>	<b>8200</b>		900	40	mg/L			08/31/16 15:26	1000
Nitrate as N	ND		200	20	mg/L			08/31/16 15:26	1000
Bromide	ND		500	60	mg/L			08/31/16 15:26	1000
<b>Sulfate</b>	<b>1900</b>		1200	260	mg/L			08/31/16 15:26	1000
<b>Sulfide</b>	<b>0.036</b>	<b>J</b>	0.050	0.0070	mg/L			09/02/16 14:23	1
<b>Dissolved Organic Carbon</b>	<b>3.7</b>		1.0	0.19	mg/L			09/15/16 11:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 09:24	1
<b>Alkalinity</b>	<b>90</b>		5.0	5.0	mg/L			08/31/16 14:04	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>90</b>		5.0	5.0	mg/L			08/31/16 14:04	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW003A-40-E2**

**Lab Sample ID: 580-62103-9**

**Date Collected: 08/30/16 13:15**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Sulfate</b>	<b>1500</b>		600	130	mg/L			09/08/16 18:14	500
<b>Total Organic Carbon</b>	<b>14</b>		1.0	0.19	mg/L			09/15/16 11:41	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>550</b>		10	10	mg/L			08/31/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		200	30	mg/L			08/31/16 15:44	1000
Nitrite as N	ND		400	80	mg/L			08/31/16 15:44	1000
<b>Chloride</b>	<b>5600</b>		900	40	mg/L			08/31/16 15:44	1000
Nitrate as N	ND		200	20	mg/L			08/31/16 15:44	1000
Bromide	ND		500	60	mg/L			08/31/16 15:44	1000
<b>Sulfate</b>	<b>1500</b>		1200	260	mg/L			08/31/16 15:44	1000
Sulfide	ND		0.050	0.0070	mg/L			09/02/16 14:23	1
<b>Dissolved Organic Carbon</b>	<b>11</b>		1.0	0.19	mg/L			09/15/16 11:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 09:24	1
<b>Alkalinity</b>	<b>300</b>		5.0	5.0	mg/L			08/31/16 14:04	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>300</b>		5.0	5.0	mg/L			08/31/16 14:04	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW003B-10-E2**

**Lab Sample ID: 580-62103-10**

**Date Collected: 08/30/16 13:00**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Sulfate</b>	<b>1100</b>		600	130	mg/L			09/08/16 18:33	500
<b>Total Organic Carbon</b>	<b>25</b>		2.0	0.38	mg/L			09/16/16 10:40	2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>190</b>		10	10	mg/L			08/31/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		200	30	mg/L			08/31/16 16:03	1000
Nitrite as N	ND		400	80	mg/L			08/31/16 16:03	1000
<b>Chloride</b>	<b>3400</b>		900	40	mg/L			08/31/16 16:03	1000
Nitrate as N	ND		200	20	mg/L			08/31/16 16:03	1000
Bromide	ND		500	60	mg/L			08/31/16 16:03	1000
<b>Sulfate</b>	<b>1100</b>	<b>J</b>	1200	260	mg/L			08/31/16 16:03	1000
Sulfide	ND		0.050	0.0070	mg/L			09/02/16 14:23	1
<b>Dissolved Organic Carbon</b>	<b>18</b>		1.0	0.19	mg/L			09/15/16 11:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 09:24	1
<b>Alkalinity</b>	<b>240</b>		5.0	5.0	mg/L			08/31/16 14:04	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>240</b>		5.0	5.0	mg/L			08/31/16 14:04	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW003B-40-E2**

**Lab Sample ID: 580-62103-11**

**Date Collected: 08/30/16 12:45**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	580	J	600	130	mg/L			09/08/16 19:28	500
Total Organic Carbon	18		1.0	0.19	mg/L			09/15/16 11:41	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	540		10	10	mg/L			08/31/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		100	15	mg/L			08/31/16 16:21	500
Nitrite as N	ND		200	40	mg/L			08/31/16 16:21	500
Chloride	1800		450	20	mg/L			08/31/16 16:21	500
Nitrate as N	ND		100	10	mg/L			08/31/16 16:21	500
Bromide	ND		250	30	mg/L			08/31/16 16:21	500
Sulfate	510	J	600	130	mg/L			08/31/16 16:21	500
Sulfide	0.15		0.050	0.0070	mg/L			09/02/16 14:23	1
Dissolved Organic Carbon	35		20	3.8	mg/L			09/18/16 12:56	20

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 09:24	1
Alkalinity	430		5.0	5.0	mg/L			08/31/16 14:04	1
Bicarbonate Alkalinity as CaCO3	430		5.0	5.0	mg/L			08/31/16 14:04	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			08/31/16 14:04	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW5MB-E2**

**Lab Sample ID: 580-62103-12**

**Date Collected: 08/30/16 16:00**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.11	B	0.087	0.015	ug/L		09/06/16 14:46	09/08/16 20:37	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,4,6-Tribromophenol	92		44 - 125				09/06/16 14:46	09/08/16 20:37	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.55	J	1.0	0.19	mg/L			09/15/16 11:41	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			09/02/16 14:23	1
Dissolved Organic Carbon	0.32	J	1.0	0.19	mg/L			09/18/16 12:56	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-226783/1-A**

**Matrix: Water**

**Analysis Batch: 227036**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 226783**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.0724	J	0.080	0.014	ug/L		09/06/16 14:46	09/08/16 19:23	1
Surrogate	%Recovery	MB Qualifier	Limits						
2,4,6-Tribromophenol	87		44 - 125						
							Prepared	Analyzed	Dil Fac
							09/06/16 14:46	09/08/16 19:23	1

**Lab Sample ID: LCS 580-226783/2-A**

**Matrix: Water**

**Analysis Batch: 227036**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 226783**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Pentachlorophenol	8.00	5.81		ug/L		73	20 - 134		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
2,4,6-Tribromophenol	77		44 - 125						

**Lab Sample ID: LCSD 580-226783/3-A**

**Matrix: Water**

**Analysis Batch: 227036**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 226783**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	8.00	6.04		ug/L		75	20 - 134	4	35
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	78		44 - 125						

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 580-226445/3**

**Matrix: Water**

**Analysis Batch: 226445**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.080	mg/L			08/31/16 09:15	1
Nitrate as N	ND		0.20	0.020	mg/L			08/31/16 09:15	1

**Lab Sample ID: LCS 580-226445/4**

**Matrix: Water**

**Analysis Batch: 226445**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrite as N	5.00	5.22		mg/L		104	90 - 110		
Nitrate as N	5.00	5.38		mg/L		108	90 - 110		

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 580-226445/5

Matrix: Water

Analysis Batch: 226445

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	5.00	5.23		mg/L		105	90 - 110	0	15
Nitrate as N	5.00	5.28		mg/L		106	90 - 110	2	15

Lab Sample ID: MB 580-226449/3

Matrix: Water

Analysis Batch: 226449

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			08/31/16 09:15	1
Chloride	ND		0.90	0.040	mg/L			08/31/16 09:15	1
Bromide	ND		0.50	0.060	mg/L			08/31/16 09:15	1
Sulfate	ND		1.2	0.26	mg/L			08/31/16 09:15	1

Lab Sample ID: LCS 580-226449/4

Matrix: Water

Analysis Batch: 226449

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	5.41		mg/L		108	90 - 110
Chloride	50.0	52.7		mg/L		105	90 - 110
Bromide	5.00	5.37		mg/L		107	90 - 110
Sulfate	50.0	54.0		mg/L		108	90 - 110

Lab Sample ID: LCSD 580-226449/5

Matrix: Water

Analysis Batch: 226449

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	5.45		mg/L		109	90 - 110	1	15
Chloride	50.0	52.8		mg/L		106	90 - 110	0	15
Bromide	5.00	5.36		mg/L		107	90 - 110	0	15
Sulfate	50.0	54.2		mg/L		108	90 - 110	0	15

Lab Sample ID: MB 580-227075/3

Matrix: Water

Analysis Batch: 227075

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.2	0.26	mg/L			09/08/16 12:06	1

Lab Sample ID: LCS 580-227075/4

Matrix: Water

Analysis Batch: 227075

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	48.9		mg/L		98	90 - 110

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID:** LCSD 580-227075/5  
**Matrix:** Water  
**Analysis Batch:** 227075

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	50.0	48.9		mg/L		98	90 - 110	0	15

**Lab Sample ID:** 580-62103-1 MS  
**Matrix:** Water  
**Analysis Batch:** 226445

**Client Sample ID:** WCTPW001A-10-E2  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	9300	F2	5.00	8980	4	mg/L		-6168	90 - 110		
Nitrate as N	0.13	J F1 F2	5.00	4.22	F1	mg/L		82	90 - 110		

**Lab Sample ID:** 580-62103-1 MSD  
**Matrix:** Water  
**Analysis Batch:** 226445

**Client Sample ID:** WCTPW001A-10-E2  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	9300	F2	5.00	4900	4 F2	mg/L		-8786	90 - 110	59	15
Nitrate as N	0.13	J F1 F2	5.00	5.27	F2	mg/L		103	90 - 110	22	15

**Lab Sample ID:** 580-62103-1 MS  
**Matrix:** Water  
**Analysis Batch:** 226449

**Client Sample ID:** WCTPW001A-10-E2  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	ND	F1	5.00	ND	F1	mg/L		0	90 - 110		
Chloride	ND	F1	50.0	ND	F1	mg/L		0	90 - 110		
Bromide	52	F2	5.00	54.8	4	mg/L		56	90 - 110		
Sulfate	ND	F1	50.0	ND	F1	mg/L		0	90 - 110		

**Lab Sample ID:** 580-62103-1 MSD  
**Matrix:** Water  
**Analysis Batch:** 226449

**Client Sample ID:** WCTPW001A-10-E2  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	ND	F1	5.00	ND	F1	mg/L		0	90 - 110	NC	15
Chloride	ND	F1	50.0	ND	F1	mg/L		0	90 - 110	NC	15
Bromide	52	F2	5.00	2020	4 F2	mg/L		39408	90 - 110	189	15
Sulfate	ND	F1	50.0	ND	F1	mg/L		0	90 - 110	NC	15

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID:** MB 580-226334/1  
**Matrix:** Water  
**Analysis Batch:** 226334

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 09:24	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

## Method: 365.1 - Phosphorus, Ortho (Continued)

**Lab Sample ID: LCS 580-226334/2**

**Matrix: Water**

**Analysis Batch: 226334**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	2.00		mg/L		100	90 - 110

**Lab Sample ID: 580-62103-1 MS**

**Matrix: Water**

**Analysis Batch: 226334**

**Client Sample ID: WCTPW001A-10-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	ND		2.00	1.61		mg/L		80	80 - 120

**Lab Sample ID: 580-62103-1 MSD**

**Matrix: Water**

**Analysis Batch: 226334**

**Client Sample ID: WCTPW001A-10-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	ND		2.00	1.67		mg/L		83	80 - 120	4	20

**Lab Sample ID: 580-62103-1 DU**

**Matrix: Water**

**Analysis Batch: 226334**

**Client Sample ID: WCTPW001A-10-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	ND		2.00	ND		mg/L				NC	20

## Method: SM 2320B - Alkalinity

**Lab Sample ID: LCS 580-226373/2**

**Matrix: Water**

**Analysis Batch: 226373**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	107		mg/L		107	85 - 115

**Lab Sample ID: 580-62103-5 DU**

**Matrix: Water**

**Analysis Batch: 226373**

**Client Sample ID: WCTPW002A-10-E2**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	110		97.2		mg/L				14	17
Bicarbonate Alkalinity as CaCO3	110		97.2		mg/L				14	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L				NC	20
Hydroxide Alkalinity as CaCO3	ND		ND		mg/L				NC	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

## Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 580-226343/1  
Matrix: Water  
Analysis Batch: 226343

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			08/31/16 10:03	1

Lab Sample ID: LCS 580-226343/2  
Matrix: Water  
Analysis Batch: 226343

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	30.0	33.2		mg/L		111	70.6 - 120

## Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-340748/4  
Matrix: Water  
Analysis Batch: 340748

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			09/02/16 14:22	1

Lab Sample ID: LCS 280-340748/3  
Matrix: Water  
Analysis Batch: 340748

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.426	0.377		mg/L		88	80 - 119

Lab Sample ID: 580-62103-1 MS  
Matrix: Water  
Analysis Batch: 340748

Client Sample ID: WCTPW001A-10-E2  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND		0.426	0.339		mg/L		80	80 - 119

Lab Sample ID: 580-62103-1 MSD  
Matrix: Water  
Analysis Batch: 340748

Client Sample ID: WCTPW001A-10-E2  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND		0.426	0.346		mg/L		81	80 - 119	2	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-227410/1  
Matrix: Water  
Analysis Batch: 227410

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			09/14/16 19:08	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: LCS 580-227410/2**

**Matrix: Water**

**Analysis Batch: 227410**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.22		mg/L		92	85 - 115

**Lab Sample ID: 580-62103-1 MS**

**Matrix: Water**

**Analysis Batch: 227410**

**Client Sample ID: WCTPW001A-10-E2**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20		10.0	30.0		mg/L		101	85 - 115

**Lab Sample ID: 580-62103-1 MSD**

**Matrix: Water**

**Analysis Batch: 227410**

**Client Sample ID: WCTPW001A-10-E2**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	20		10.0	29.4		mg/L		95	85 - 115	2	20

**Lab Sample ID: 580-62103-1 DU**

**Matrix: Water**

**Analysis Batch: 227410**

**Client Sample ID: WCTPW001A-10-E2**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	20		10.0	19.9		mg/L				0.3	20

**Lab Sample ID: MB 580-227536/3**

**Matrix: Water**

**Analysis Batch: 227536**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			09/15/16 11:41	1

**Lab Sample ID: LCS 580-227536/4**

**Matrix: Water**

**Analysis Batch: 227536**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.88		mg/L		99	85 - 115

**Lab Sample ID: 580-62103-6 MS**

**Matrix: Water**

**Analysis Batch: 227536**

**Client Sample ID: WCTPW002A-40-E2**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	3.3		10.0	14.1		mg/L		108	85 - 115

**Lab Sample ID: 580-62103-6 MSD**

**Matrix: Water**

**Analysis Batch: 227536**

**Client Sample ID: WCTPW002A-40-E2**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	3.3		10.0	14.4		mg/L		112	85 - 115	2	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Lab Sample ID: 580-62103-6 DU**  
**Matrix: Water**  
**Analysis Batch: 227536**

**Client Sample ID: WCTPW002A-40-E2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	3.3		3.40		mg/L		4	20

**Lab Sample ID: MB 580-227633/3**  
**Matrix: Water**  
**Analysis Batch: 227633**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			09/16/16 10:38	1

**Lab Sample ID: LCS 580-227633/4**  
**Matrix: Water**  
**Analysis Batch: 227633**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	10.0	11.1		mg/L		111	85 - 115

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-227537/3**  
**Matrix: Water**  
**Analysis Batch: 227537**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			09/15/16 11:47	1

**Lab Sample ID: LCS 580-227537/4**  
**Matrix: Water**  
**Analysis Batch: 227537**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Dissolved Organic Carbon	10.0	10.2		mg/L		102	85 - 115

**Lab Sample ID: 580-62103-1 MS**  
**Matrix: Water**  
**Analysis Batch: 227537**

**Client Sample ID: WCTPW001A-10-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Dissolved Organic Carbon	13		10.0	23.4		mg/L		105	85 - 115

**Lab Sample ID: 580-62103-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 227537**

**Client Sample ID: WCTPW001A-10-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Dissolved Organic Carbon	13		10.0	23.5		mg/L		106	85 - 115	1	20

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

**Lab Sample ID: 580-62103-1 DU**  
**Matrix: Water**  
**Analysis Batch: 227537**

**Client Sample ID: WCTPW001A-10-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Dissolved Organic Carbon	13		12.8		mg/L		0.7	20

**Lab Sample ID: MB 580-227550/3**  
**Matrix: Water**  
**Analysis Batch: 227550**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			09/18/16 12:56	1

**Lab Sample ID: LCS 580-227550/4**  
**Matrix: Water**  
**Analysis Batch: 227550**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	11.0		mg/L		110	85 - 115

**Lab Sample ID: 580-62103-12 MS**  
**Matrix: Water**  
**Analysis Batch: 227550**

**Client Sample ID: WCTPW5MB-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	0.32	J	10.0	11.3		mg/L		110	85 - 115

**Lab Sample ID: 580-62103-12 MSD**  
**Matrix: Water**  
**Analysis Batch: 227550**

**Client Sample ID: WCTPW5MB-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Dissolved Organic Carbon	0.32	J	10.0	11.3		mg/L		110	85 - 115	0	20

**Lab Sample ID: 580-62103-12 DU**  
**Matrix: Water**  
**Analysis Batch: 227550**

**Client Sample ID: WCTPW5MB-E2**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Dissolved Organic Carbon	0.32	J	0.264	J	mg/L		18	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW001A-10-E2**

**Lab Sample ID: 580-62103-1**

**Date Collected: 08/30/16 10:30**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1000	226445	08/31/16 12:40	RSB	TAL SEA
Dissolved	Analysis	300.0		1000	226449	08/31/16 12:40	RSB	TAL SEA
Total/NA	Analysis	300.0		500	227075	09/08/16 15:47	RSB	TAL SEA
Dissolved	Analysis	365.1		1	226334	08/31/16 09:24	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	226373	08/31/16 14:04	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	226343	08/31/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340748	09/02/16 14:23	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	227537	09/15/16 11:47	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227410	09/14/16 19:08	Z1T	TAL SEA

**Client Sample ID: WCTPW001A-40-E2**

**Lab Sample ID: 580-62103-2**

**Date Collected: 08/30/16 10:00**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	226449	08/31/16 11:33	RSB	TAL SEA
Dissolved	Analysis	300.0		100	226445	08/31/16 12:59	RSB	TAL SEA
Dissolved	Analysis	300.0		100	226449	08/31/16 12:59	RSB	TAL SEA
Total/NA	Analysis	300.0		10	227075	09/08/16 16:05	RSB	TAL SEA
Dissolved	Analysis	365.1		1	226334	08/31/16 09:24	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	226373	08/31/16 14:04	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	226343	08/31/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340748	09/02/16 14:23	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	227537	09/15/16 11:47	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	227410	09/14/16 19:08	Z1T	TAL SEA

**Client Sample ID: WCTPW001B-10-E2**

**Lab Sample ID: 580-62103-3**

**Date Collected: 08/30/16 09:17**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1000	226445	08/31/16 13:17	RSB	TAL SEA
Dissolved	Analysis	300.0		1000	226449	08/31/16 13:17	RSB	TAL SEA
Total/NA	Analysis	300.0		500	227075	09/08/16 16:24	RSB	TAL SEA
Dissolved	Analysis	365.1		1	226334	08/31/16 09:24	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	226373	08/31/16 14:04	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	226343	08/31/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340748	09/02/16 14:23	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	227537	09/15/16 11:47	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227410	09/14/16 19:08	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW001B-40-E2**

**Lab Sample ID: 580-62103-4**

**Date Collected: 08/30/16 09:00**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1000	226445	08/31/16 13:35	RSB	TAL SEA
Dissolved	Analysis	300.0		1000	226449	08/31/16 13:35	RSB	TAL SEA
Total/NA	Analysis	300.0		100	227075	09/08/16 16:42	RSB	TAL SEA
Dissolved	Analysis	365.1		1	226334	08/31/16 09:24	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	226373	08/31/16 14:04	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	226343	08/31/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340748	09/02/16 14:23	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	227537	09/15/16 11:47	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227410	09/14/16 19:08	Z1T	TAL SEA

**Client Sample ID: WCTPW002A-10-E2**

**Lab Sample ID: 580-62103-5**

**Date Collected: 08/30/16 12:30**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1000	226445	08/31/16 14:31	RSB	TAL SEA
Dissolved	Analysis	300.0		1000	226449	08/31/16 14:31	RSB	TAL SEA
Total/NA	Analysis	300.0		500	227075	09/08/16 17:00	RSB	TAL SEA
Dissolved	Analysis	365.1		1	226334	08/31/16 09:24	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	226373	08/31/16 14:04	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	226343	08/31/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340748	09/02/16 14:23	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	227537	09/15/16 11:47	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227410	09/14/16 19:08	Z1T	TAL SEA

**Client Sample ID: WCTPW002A-40-E2**

**Lab Sample ID: 580-62103-6**

**Date Collected: 08/30/16 11:50**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1000	226445	08/31/16 14:49	RSB	TAL SEA
Dissolved	Analysis	300.0		1000	226449	08/31/16 14:49	RSB	TAL SEA
Total/NA	Analysis	300.0		500	227075	09/08/16 17:19	RSB	TAL SEA
Dissolved	Analysis	365.1		1	226334	08/31/16 09:24	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	226373	08/31/16 14:04	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	226343	08/31/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340748	09/02/16 14:23	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	227537	09/15/16 11:47	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227536	09/15/16 11:41	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

**Client Sample ID: WCTPW002B-10-E2**

**Lab Sample ID: 580-62103-7**

Date Collected: 08/30/16 11:30

Matrix: Water

Date Received: 08/30/16 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1000	226445	08/31/16 15:07	RSB	TAL SEA
Dissolved	Analysis	300.0		1000	226449	08/31/16 15:07	RSB	TAL SEA
Total/NA	Analysis	300.0		500	227075	09/08/16 17:38	RSB	TAL SEA
Dissolved	Analysis	365.1		1	226334	08/31/16 09:24	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	226373	08/31/16 14:04	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	226343	08/31/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340748	09/02/16 14:23	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	227537	09/15/16 11:47	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227536	09/15/16 11:41	Z1T	TAL SEA

**Client Sample ID: WCTPW002B-40-E2**

**Lab Sample ID: 580-62103-8**

Date Collected: 08/30/16 11:15

Matrix: Water

Date Received: 08/30/16 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1000	226445	08/31/16 15:26	RSB	TAL SEA
Dissolved	Analysis	300.0		1000	226449	08/31/16 15:26	RSB	TAL SEA
Total/NA	Analysis	300.0		500	227075	09/08/16 17:56	RSB	TAL SEA
Dissolved	Analysis	365.1		1	226334	08/31/16 09:24	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	226373	08/31/16 14:04	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	226343	08/31/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340748	09/02/16 14:23	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	227537	09/15/16 11:47	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227536	09/15/16 11:41	Z1T	TAL SEA

**Client Sample ID: WCTPW003A-40-E2**

**Lab Sample ID: 580-62103-9**

Date Collected: 08/30/16 13:15

Matrix: Water

Date Received: 08/30/16 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1000	226445	08/31/16 15:44	RSB	TAL SEA
Dissolved	Analysis	300.0		1000	226449	08/31/16 15:44	RSB	TAL SEA
Total/NA	Analysis	300.0		500	227075	09/08/16 18:14	RSB	TAL SEA
Dissolved	Analysis	365.1		1	226334	08/31/16 09:24	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	226373	08/31/16 14:04	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	226343	08/31/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340748	09/02/16 14:23	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	227537	09/15/16 11:47	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227536	09/15/16 11:41	Z1T	TAL SEA

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

## Client Sample ID: WCTPW003B-10-E2

Lab Sample ID: 580-62103-10

Date Collected: 08/30/16 13:00

Matrix: Water

Date Received: 08/30/16 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1000	226445	08/31/16 16:03	RSB	TAL SEA
Dissolved	Analysis	300.0		1000	226449	08/31/16 16:03	RSB	TAL SEA
Total/NA	Analysis	300.0		500	227075	09/08/16 18:33	RSB	TAL SEA
Dissolved	Analysis	365.1		1	226334	08/31/16 09:24	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	226373	08/31/16 14:04	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	226343	08/31/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340748	09/02/16 14:23	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	227537	09/15/16 11:47	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	227633	09/16/16 10:40	Z1T	TAL SEA

## Client Sample ID: WCTPW003B-40-E2

Lab Sample ID: 580-62103-11

Date Collected: 08/30/16 12:45

Matrix: Water

Date Received: 08/30/16 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		500	226445	08/31/16 16:21	RSB	TAL SEA
Dissolved	Analysis	300.0		500	226449	08/31/16 16:21	RSB	TAL SEA
Total/NA	Analysis	300.0		500	227075	09/08/16 19:28	RSB	TAL SEA
Dissolved	Analysis	365.1		1	226334	08/31/16 09:24	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	226373	08/31/16 14:04	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	226343	08/31/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340748	09/02/16 14:23	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		20	227550	09/18/16 12:56	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227536	09/15/16 11:41	Z1T	TAL SEA

## Client Sample ID: WCTPW5MB-E2

Lab Sample ID: 580-62103-12

Date Collected: 08/30/16 16:00

Matrix: Water

Date Received: 08/30/16 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			226783	09/06/16 14:46	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	227036	09/08/16 20:37	D1R	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340748	09/02/16 14:23	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	227550	09/18/16 12:56	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227536	09/15/16 11:41	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 2540D		Water	Total Suspended Solids
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary


Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-62103-1	WCTPW001A-10-E2	Water	08/30/16 10:30	08/30/16 16:05
580-62103-2	WCTPW001A-40-E2	Water	08/30/16 10:00	08/30/16 16:05
580-62103-3	WCTPW001B-10-E2	Water	08/30/16 09:17	08/30/16 16:05
580-62103-4	WCTPW001B-40-E2	Water	08/30/16 09:00	08/30/16 16:05
580-62103-5	WCTPW002A-10-E2	Water	08/30/16 12:30	08/30/16 16:05
580-62103-6	WCTPW002A-40-E2	Water	08/30/16 11:50	08/30/16 16:05
580-62103-7	WCTPW002B-10-E2	Water	08/30/16 11:30	08/30/16 16:05
580-62103-8	WCTPW002B-40-E2	Water	08/30/16 11:15	08/30/16 16:05
580-62103-9	WCTPW003A-40-E2	Water	08/30/16 13:15	08/30/16 16:05
580-62103-10	WCTPW003B-10-E2	Water	08/30/16 13:00	08/30/16 16:05
580-62103-11	WCTPW003B-40-E2	Water	08/30/16 12:45	08/30/16 16:05
580-62103-12	WCTPW5MB-E2	Water	08/30/16 16:00	08/30/16 16:05

Field Sampler(s):  
GSI

### Chain of Custody Record

 55 SW Yamhill St, Suite 300 Portland, Oregon 97204 503.239.8700			
<b>Client Contact</b> Project Name: Parcel 15 - POT Project # or PO #: 603.002.012 Project Manager: Erin Hughes/Cindy Ryals Phone #: 971-200-8528 and 971-200-8531 Report to email: echughes@gsiws.com, cryals@gsiws.com		<b>For Lab Use Only:</b> SDG: _____ Custody Seals intact? Hand delivered? Cooler Temp: _____ °C Therm ID No.: _____ Therm Exp. _____	
<b>Analysis Turnaround Time:</b> Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater		<b>Laboratory</b> TestAmerica Brooks Analysis Requested	
		Lab PM Brooks - Ben Wozniak- 206-753-6158 TestAmerica - Christabel Escarez- 253.248.4975	

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Analysis Requested														Sample Specific Notes	
							SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***		Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)
WCTPN001A-10-E2	8/30/15	1030	22658	G	W	12	X	X	X	X	X	X	X	X	X				X	X	X	
WCTPN001A-40-E2		1000	10534																			
WCTPN001B-10-E2		917	21617																			
WCTPN001B-40-E2		900	13408																			
WCTPN002A-10-E2		1230	32876																			
WCTPN002A-40-E2		1150	24409																			
WCTPN002B-10-E2		1130	28314																			
WCTPN002B-40-E2		1115	19911																			
WCTPN003A-40-E2		1315	NM																			
WCTPN003B-10-E2		1300	21959																			
WCTPN003B-40-E2		1245	2811																			
WCTPN5MB-E2	8/30/16	1600	NM	G	W	1	X	X	X										X	X	X	

<b>Possible Hazard Identification:</b> Are samples hazardous? <input checked="" type="checkbox"/> No If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic		Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year	
Relinquished by: <i>[Signature]</i> GSI Date/Time: 8/30/15 1605		Received by: <i>B. Stell</i> SFA TH Date/Time: 8/30/16 1605	
Relinquished by: _____ Date/Time: _____		Received by: _____ Date/Time: _____	
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____		Received in Laboratory by: _____ Date/Time: _____	

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

NM = not measured





TB <sup>H2</sup> Cooler Cor 2.6 Unc 2.8  
Cooler Dsc 1g B/w @Lab  
Wet/Packs Packing other  
C.I. do W/O

Loc: 580  
62103

TB <sup>H2</sup> Cooler Cor 10.0 Unc 10.2  
Cooler Dsc 1g B/w @Lab  
Wet/Packs Packing other  
C.I. do W/O

TB <sup>H2</sup> Cooler Cor 6.3 Unc 6.5  
Cooler Dsc 1g B/w @Lab  
Wet/Packs Packing other  
C.I. do W/O



580-62103 Chain of Custody

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**Chain of Custody Record**

Tacoma, WA 98424  
Phone (253) 922-2310 Fax (253) 922-5047

Client Information (Sub Contract Lab)		Lab P/N		Carrier Tracking No(s)		COC No:	
Client Contact: Escarez, Christabel C		Escarez, Christabel C		580-40447.1		580-40447.1	
Shipping/Receiving		E-Mail: christabel.escarez@testamericainc.com		Page 1 of 2		Job # 580-62103-1	
Company: TestAmerica Laboratories, Inc.		Due Date Requested: 9/15/2016		Analysis Requested		Preservation Codes:	
Address: 4955 Yarrow Street		TAT Requested (days):		SM4500_S2.D\FIELD_FLTRD Dissolved Sulfide, field-filtered		A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
City: Arvada		PO #		Perform MS/MSD (Yes or No)		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
State, Zip: CO, 80002		WO #		Field Filtered Sample (Yes or No)		Total Number of containers	
Phone: 303-736-0100(Tel) 303-431-7171(Fax)		Project #: 58009703		Sample Date		Special Instructions/Note:	
Email:		SSOW#		Sample Time			
Project Name: Parcel 15 RI-POT		Sample Date		Sample Type (C=Comp, G=grab)			
Site:		Sample Date		Sample Time			
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Preservation Code:	
WCTPW001A-10-E2 (580-62103-1)	8/30/16	10:30 Pacific	Water	X		1	
WCTPW001A-40-E2 (580-62103-2)	8/30/16	10:00 Pacific	Water	X		1	
WCTPW001B-10-E2 (580-62103-3)	8/30/16	09:17 Pacific	Water	X		1	
WCTPW001B-40-E2 (580-62103-4)	8/30/16	09:00 Pacific	Water	X		1	
WCTPW002A-10-E2 (580-62103-5)	8/30/16	12:30 Pacific	Water	X		1	
WCTPW002A-40-E2 (580-62103-6)	8/30/16	11:50 Pacific	Water	X		1	
WCTPW002B-10-E2 (580-62103-7)	8/30/16	11:30 Pacific	Water	X		1	
WCTPW002B-40-E2 (580-62103-8)	8/30/16	11:15 Pacific	Water	X		1	
WCTPW003A-40-E2 (580-62103-9)	8/30/16	13:15 Pacific	Water	X		1	
WCTPW003B-10-E2 (580-62103-10)	8/30/16	13:00 Pacific	Water	X		1	
WCTPW003B-40-E2 (580-62103-11)	8/30/16	12:45 Pacific	Water	X		1	
<b>Possible Hazard Identification</b>							
Unconfirmed							
Deliverable Requested: I, II, III, IV, Other (specify)							
Empty Kit Relinquished by:							
Relinquished by: <i>B. Hall</i>							
Relinquished by:							
Relinquished by:							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No							
Custody Seal No.:							



**Chain of Custody Record**

<b>Client Information (Sub Contract Lab)</b>			Sampler: _____			Lab PM: _____			Carrier Tracking No(s): _____			COC No: _____		
Client Contact: _____			Phone: _____			Escarez, Christabel C			Page _____			580-40447.2		
Shipping/Receiving			E-Mail: _____			christabel.escarez@testamericainc.com			Page 2 of 2			Job # _____		
Company: TestAmerica Laboratories, Inc.			Address: 4955 Yarrow Street,			City: Arvada			State, Zip: CO, 80002			Phone: 303-736-0100(Tel) 303-431-7171(Fax)		
Email: _____			PO #: _____			WO #: _____			Project #: 58009703			SSOW#: _____		
Parcel Name: Parcel 15 RI-POT			Site: _____			Due Date Requested: 9/15/2016			TAT Requested (days): _____			Analysis Requested		
<b>Sample Identification - Client ID (Lab ID)</b>			Sample Date			Sample Time			Sample Type (C=Comp, G=grab)			Matrix (W=water, S=solid, O=wastewater, BT=Tissue, Air)		
WC:TPW5MB-E2 (580-62103-12)			8/30/16			16:00 Pacific			Water			Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>		
												Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>		
												SM4500_S2_D/FIELD_FLTRD Dissolved Sulfide, field-filtered		
												Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>		
												Total Number of Containers		
												1		
												Special Instructions/Note:		
												Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: _____ M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify) _____		
<b>Possible Hazard Identification</b>			Unconfirmed			Deliverable Requested: I, II, III, IV, Other (specify)			Primary Deliverable Rank: 2			Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		
Empty Kit Relinquished by: _____			Date: _____			Time: _____			Method of Shipment: _____			Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Relinquished by: <i>B. Hall</i>			Date/Time: 8.31.16 1350			Company: SEATA			Received by: _____			Date/Time: 9/1/16 0920		
Relinquished by: _____			Date/Time: _____			Company: _____			Received by: _____			Date/Time: _____		
Relinquished by: _____			Date/Time: _____			Company: _____			Received by: _____			Date/Time: _____		
Custody Seals Intact: _____			Custody Seal No.: _____			Cooler Temperature(s) °C and Other Remarks: _____								



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-62103-1

**Login Number: 62103**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-62103-1

**Login Number: 62103**

**List Number: 2**

**Creator: White, Denise E**

**List Source: TestAmerica Denver**

**List Creation: 09/01/16 03:08 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-62103-2  
Client Project/Site: Parcel 15 RI-POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Cindy Ryals



Authorized for release by:  
9/29/2016 5:00:17 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

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**Job ID: 580-62103-2**

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**Laboratory: TestAmerica Seattle**

## Narrative

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### Job Narrative 580-62103-2

#### Receipt

The samples were received on 8/30/2016 4:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 10.0° C, 12.6° C and 16.3° C. The temperatures are considered acceptable as the samples were received by the laboratory on the same day of collection and there is evidence the chilling process has begun.

#### Receipt Exceptions

Samples WCTPW001A-10-E2 (580-62103-1), WCTPW001A-40-E2 (580-62103-2), WCTPW001B-10-E2 (580-62103-3), WCTPW001B-40-E2 (580-62103-4), WCTPW002A-10-E2 (580-62103-5), WCTPW002A-40-E2 (580-62103-6), WCTPW002B-10-E2 (580-62103-7), WCTPW002B-40-E2 (580-62103-8), WCTPW003A-40-E2 (580-62103-9), WCTPW003B-10-E2 (580-62103-10), WCTPW003B-40-E2 (580-62103-11) and WCTPW5MB-E2 (580-62103-12) were activated for 6010C analysis on 9/27/16.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

## Qualifiers

### Metals

Qualifier	Qualifier Description
E	Result exceeded calibration range.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW001A-10-E2**

**Lab Sample ID: 580-62103-1**

**Date Collected: 08/30/16 10:30**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	260		1.1	0.023	mg/L		09/28/16 11:18	09/29/16 10:01	1
Magnesium	750		110	13	mg/L		09/28/16 11:18	09/29/16 11:28	100
Potassium	240		3.3	0.15	mg/L		09/28/16 11:18	09/29/16 10:01	1
Sodium	6300		200	55	mg/L		09/28/16 11:18	09/29/16 11:28	100

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW001A-40-E2**

**Lab Sample ID: 580-62103-2**

**Date Collected: 08/30/16 10:00**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	59		1.1	0.023	mg/L		09/28/16 11:18	09/29/16 10:26	1
Magnesium	70		1.1	0.13	mg/L		09/28/16 11:18	09/29/16 10:26	1
Potassium	32		3.3	0.15	mg/L		09/28/16 11:18	09/29/16 10:26	1
Sodium	320		10	2.8	mg/L		09/28/16 11:18	09/29/16 11:31	5

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW001B-10-E2**

**Lab Sample ID: 580-62103-3**

**Date Collected: 08/30/16 09:17**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	170		1.1	0.023	mg/L		09/28/16 11:18	09/29/16 10:30	1
Magnesium	480		110	13	mg/L		09/28/16 11:18	09/29/16 11:34	100
Potassium	180		3.3	0.15	mg/L		09/28/16 11:18	09/29/16 10:30	1
Sodium	4300		200	55	mg/L		09/28/16 11:18	09/29/16 11:34	100

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW001B-40-E2**

**Lab Sample ID: 580-62103-4**

**Date Collected: 08/30/16 09:00**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	77		1.1	0.023	mg/L		09/28/16 11:18	09/29/16 10:33	1
Magnesium	190		1.1	0.13	mg/L		09/28/16 11:18	09/29/16 10:33	1
Potassium	79		3.3	0.15	mg/L		09/28/16 11:18	09/29/16 10:33	1
Sodium	1700		200	55	mg/L		09/28/16 11:18	09/29/16 11:37	100

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW002A-10-E2**

**Lab Sample ID: 580-62103-5**

**Date Collected: 08/30/16 12:30**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	250		1.1	0.023	mg/L		09/28/16 11:18	09/29/16 10:37	1
Magnesium	740		110	13	mg/L		09/28/16 11:18	09/29/16 11:47	100
Potassium	260		3.3	0.15	mg/L		09/28/16 11:18	09/29/16 10:37	1
Sodium	6400		200	55	mg/L		09/28/16 11:18	09/29/16 11:47	100

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW002A-40-E2**

**Lab Sample ID: 580-62103-6**

**Date Collected: 08/30/16 11:50**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	210		1.1	0.023	mg/L		09/28/16 11:18	09/29/16 10:40	1
Magnesium	600		110	13	mg/L		09/28/16 11:18	09/29/16 11:50	100
Potassium	220		3.3	0.15	mg/L		09/28/16 11:18	09/29/16 10:40	1
Sodium	5400		200	55	mg/L		09/28/16 11:18	09/29/16 11:50	100

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW002B-10-E2**

**Lab Sample ID: 580-62103-7**

**Date Collected: 08/30/16 11:30**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	130		1.1	0.023	mg/L		09/28/16 11:18	09/29/16 10:43	1
Magnesium	400		110	13	mg/L		09/28/16 11:18	09/29/16 11:54	100
Potassium	140		3.3	0.15	mg/L		09/28/16 11:18	09/29/16 10:43	1
Sodium	3300		200	55	mg/L		09/28/16 11:18	09/29/16 11:54	100



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW002B-40-E2**

**Lab Sample ID: 580-62103-8**

**Date Collected: 08/30/16 11:15**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	84		1.1	0.023	mg/L		09/28/16 11:18	09/29/16 10:47	1
Magnesium	240		1.1	0.13	mg/L		09/28/16 11:18	09/29/16 10:47	1
Potassium	110		3.3	0.15	mg/L		09/28/16 11:18	09/29/16 10:47	1
Sodium	2300		200	55	mg/L		09/28/16 11:18	09/29/16 11:57	100

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW003A-40-E2**

**Lab Sample ID: 580-62103-9**

**Date Collected: 08/30/16 13:15**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110		1.1	0.023	mg/L		09/28/16 11:18	09/29/16 10:50	1
Magnesium	230		1.1	0.13	mg/L		09/28/16 11:18	09/29/16 10:50	1
Potassium	84		3.3	0.15	mg/L		09/28/16 11:18	09/29/16 10:50	1
Sodium	1500		200	55	mg/L		09/28/16 11:18	09/29/16 12:00	100

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW003B-10-E2**

**Lab Sample ID: 580-62103-10**

**Date Collected: 08/30/16 13:00**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	120		1.1	0.023	mg/L		09/28/16 11:18	09/29/16 10:54	1
Magnesium	240		1.1	0.13	mg/L		09/28/16 11:18	09/29/16 10:54	1
Potassium	85		3.3	0.15	mg/L		09/28/16 11:18	09/29/16 10:54	1
Sodium	1600		200	55	mg/L		09/28/16 11:18	09/29/16 12:04	100

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW003B-40-E2**

**Lab Sample ID: 580-62103-11**

**Date Collected: 08/30/16 12:45**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	36		1.1	0.023	mg/L		09/28/16 11:18	09/29/16 10:57	1
Magnesium	72		1.1	0.13	mg/L		09/28/16 11:18	09/29/16 10:57	1
Potassium	46		3.3	0.15	mg/L		09/28/16 11:18	09/29/16 10:57	1
Sodium	720		20	5.5	mg/L		09/28/16 11:18	09/29/16 12:07	10

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-228550/20-A**  
**Matrix: Water**  
**Analysis Batch: 228672**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 228550**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		09/28/16 11:18	09/29/16 09:51	1
Magnesium	ND		1.1	0.13	mg/L		09/28/16 11:18	09/29/16 09:51	1
Potassium	ND		3.3	0.15	mg/L		09/28/16 11:18	09/29/16 09:51	1
Sodium	ND		2.0	0.55	mg/L		09/28/16 11:18	09/29/16 09:51	1

**Lab Sample ID: LCS 580-228550/21-A**  
**Matrix: Water**  
**Analysis Batch: 228672**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 228550**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	20.5		mg/L		103	80 - 120
Magnesium	20.0	19.8		mg/L		99	80 - 120
Potassium	20.0	19.7		mg/L		99	80 - 120
Sodium	20.0	20.5		mg/L		103	80 - 120

**Lab Sample ID: LCSD 580-228550/22-A**  
**Matrix: Water**  
**Analysis Batch: 228672**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 228550**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	20.0	20.8		mg/L		104	80 - 120	1	20
Magnesium	20.0	20.1		mg/L		100	80 - 120	1	20
Potassium	20.0	20.0		mg/L		100	80 - 120	1	20
Sodium	20.0	20.7		mg/L		104	80 - 120	1	20

**Lab Sample ID: 580-62103-1 MS**  
**Matrix: Water**  
**Analysis Batch: 228672**

**Client Sample ID: WCTPW001A-10-E2**  
**Prep Type: Dissolved**  
**Prep Batch: 228550**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	260		20.0	277	4	mg/L		65	75 - 125
Magnesium	790		20.0	796	4	mg/L		21	75 - 125
Potassium	240		20.0	255	4	mg/L		82	75 - 125
Sodium	2800	E	20.0	2160	E 4	mg/L		-2965	75 - 125

**Lab Sample ID: 580-62103-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 228672**

**Client Sample ID: WCTPW001A-10-E2**  
**Prep Type: Dissolved**  
**Prep Batch: 228550**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	260		20.0	278	4	mg/L		72	75 - 125	0	20
Magnesium	790		20.0	798	4	mg/L		33	75 - 125	0	20
Potassium	240		20.0	257	4	mg/L		94	75 - 125	1	20
Sodium	2800	E	20.0	2120	E 4	mg/L		-3170	75 - 125	2	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

## Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 580-62103-1 DU

Matrix: Water

Analysis Batch: 228672

Client Sample ID: WCTPW001A-10-E2

Prep Type: Dissolved

Prep Batch: 228550

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Calcium	260		265		mg/L		0.3	20
Magnesium	790		797		mg/L		0.7	20
Potassium	240		240		mg/L		0.5	20
Sodium	2800	E	2330	E	mg/L		17	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW001A-10-E2**

**Lab Sample ID: 580-62103-1**

**Date Collected: 08/30/16 10:30**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		1	228672	09/29/16 10:01	HJM	TAL SEA
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		100	228672	09/29/16 11:28	HJM	TAL SEA

**Client Sample ID: WCTPW001A-40-E2**

**Lab Sample ID: 580-62103-2**

**Date Collected: 08/30/16 10:00**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		1	228672	09/29/16 10:26	HJM	TAL SEA
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		5	228672	09/29/16 11:31	HJM	TAL SEA

**Client Sample ID: WCTPW001B-10-E2**

**Lab Sample ID: 580-62103-3**

**Date Collected: 08/30/16 09:17**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		1	228672	09/29/16 10:30	HJM	TAL SEA
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		100	228672	09/29/16 11:34	HJM	TAL SEA

**Client Sample ID: WCTPW001B-40-E2**

**Lab Sample ID: 580-62103-4**

**Date Collected: 08/30/16 09:00**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		1	228672	09/29/16 10:33	HJM	TAL SEA
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		100	228672	09/29/16 11:37	HJM	TAL SEA

**Client Sample ID: WCTPW002A-10-E2**

**Lab Sample ID: 580-62103-5**

**Date Collected: 08/30/16 12:30**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		1	228672	09/29/16 10:37	HJM	TAL SEA
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW002A-10-E2**

**Lab Sample ID: 580-62103-5**

**Date Collected: 08/30/16 12:30**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6010C		100	228672	09/29/16 11:47	HJM	TAL SEA

**Client Sample ID: WCTPW002A-40-E2**

**Lab Sample ID: 580-62103-6**

**Date Collected: 08/30/16 11:50**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		1	228672	09/29/16 10:40	HJM	TAL SEA
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		100	228672	09/29/16 11:50	HJM	TAL SEA

**Client Sample ID: WCTPW002B-10-E2**

**Lab Sample ID: 580-62103-7**

**Date Collected: 08/30/16 11:30**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		1	228672	09/29/16 10:43	HJM	TAL SEA
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		100	228672	09/29/16 11:54	HJM	TAL SEA

**Client Sample ID: WCTPW002B-40-E2**

**Lab Sample ID: 580-62103-8**

**Date Collected: 08/30/16 11:15**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		1	228672	09/29/16 10:47	HJM	TAL SEA
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		100	228672	09/29/16 11:57	HJM	TAL SEA

**Client Sample ID: WCTPW003A-40-E2**

**Lab Sample ID: 580-62103-9**

**Date Collected: 08/30/16 13:15**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		1	228672	09/29/16 10:50	HJM	TAL SEA
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		100	228672	09/29/16 12:00	HJM	TAL SEA

TestAmerica Seattle



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

**Client Sample ID: WCTPW003B-10-E2**

**Lab Sample ID: 580-62103-10**

**Date Collected: 08/30/16 13:00**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		1	228672	09/29/16 10:54	HJM	TAL SEA
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		100	228672	09/29/16 12:04	HJM	TAL SEA

**Client Sample ID: WCTPW003B-40-E2**

**Lab Sample ID: 580-62103-11**

**Date Collected: 08/30/16 12:45**

**Matrix: Water**

**Date Received: 08/30/16 16:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		1	228672	09/29/16 10:57	HJM	TAL SEA
Dissolved	Prep	3005A			228550	09/28/16 11:18	MKN	TAL SEA
Dissolved	Analysis	6010C		10	228672	09/29/16 12:07	HJM	TAL SEA

**Laboratory References:**

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

## Laboratory: TestAmerica Seattle

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

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# Sample Summary


Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI-POT

TestAmerica Job ID: 580-62103-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-62103-1	WCTPW001A-10-E2	Water	08/30/16 10:30	08/30/16 16:05
580-62103-2	WCTPW001A-40-E2	Water	08/30/16 10:00	08/30/16 16:05
580-62103-3	WCTPW001B-10-E2	Water	08/30/16 09:17	08/30/16 16:05
580-62103-4	WCTPW001B-40-E2	Water	08/30/16 09:00	08/30/16 16:05
580-62103-5	WCTPW002A-10-E2	Water	08/30/16 12:30	08/30/16 16:05
580-62103-6	WCTPW002A-40-E2	Water	08/30/16 11:50	08/30/16 16:05
580-62103-7	WCTPW002B-10-E2	Water	08/30/16 11:30	08/30/16 16:05
580-62103-8	WCTPW002B-40-E2	Water	08/30/16 11:15	08/30/16 16:05
580-62103-9	WCTPW003A-40-E2	Water	08/30/16 13:15	08/30/16 16:05
580-62103-10	WCTPW003B-10-E2	Water	08/30/16 13:00	08/30/16 16:05
580-62103-11	WCTPW003B-40-E2	Water	08/30/16 12:45	08/30/16 16:05

Field Sampler(s):  
GSI

### Chain of Custody Record

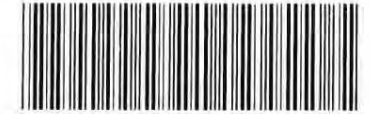
 55 SW Yamhill St, Suite 300 Portland, Oregon 97204 503.239.8700		Client Contact Project Name: Parcel 15 - POT Project # or PO #: 603.002.012 Project Manager: Erin Hughes/Cindy Ryals Phone #: 971-200-8528 and 971-200-8531 Report to email: echughes@gsiws.com, cryals@gsiws.com			For Lab Use Only: SDG: _____ Custody Seals intact? Hand delivered? Cooler Temp: _____ °C Therm ID No.: _____ Therm Exp. _____			Laboratory TestAmerica Brooks Analysis Requested				Lab PM Brooks - Ben Wozniak - 206-753-6158 TestAmerica - Christabel Escarez - 253.248.4975
Analysis Turnaround Time: Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater		SM5310B: Total Organic Carbon SM5310B: Dissolved Organic Carbon (field filtered) SM4500 S 2D: Sulfide (dissolved; field filtered) SM2540D: Total Suspended Solids (TSS) 6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)* 300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)** 300.0: Nitrate and Nitrite (dissolved; field filtered) SM2320B: Alkalinity (field filtered)*** 365.1: Major Anions (Orthophosphate; dissolved; field filtered) 6020A: Arsenic (total) 6020A: Arsenic, Iron, and Manganese (dissolved; field filtered) 8260D SIM: Pentachlorophenol 1638M: Arsenic (total) 1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)*** Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)										

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes	
WCTPN001A-10-E2	8/30/15	1030	22658	G	W	12	X	X	X	X	X	X	X	X	X					X	X	X	
WCTPN001A-40-E2		1000	10534																				
WCTPN001B-10-E2		917	21617																				
WCTPN001B-40-E2		900	13408																				
WCTPN002A-10-E2		1230	32876																				
WCTPN002A-40-E2		1150	24409																				
WCTPN002B-10-E2		1130	28314																				
WCTPN002B-40-E2		1115	19911																				
WCTPN003A-40-E2		1315	NM																				
WCTPN003B-10-E2		1300	21959																				
WCTPN003B-40-E2		1245	2811																				
WCTPN5MB-E2	8/30/16	1600	NM	G	W	1	X	X	X									X	X	X			

<b>Possible Hazard Identification:</b> Are samples hazardous? <input checked="" type="checkbox"/> No If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic		Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year	
Relinquished by: <i>[Signature]</i> GSI Date/Time: 8/30/15 1605		Received by: <i>B. Stell</i> SFA TH Date/Time: 8/30/16 1605	
Relinquished by: _____ Date/Time: _____		Received by: _____ Date/Time: _____	
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other		Tracking #: _____ Received in Laboratory by: _____ Date/Time: _____	

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

*NM = not measured*



TB <sup>H2</sup> Cooler Cor 2.6 Unc 2.8  
Cooler Dsc 1g B/w @Lab  
Wet/Packs Packing other  
C.I. do W/O

Loc: 580  
62103

TB <sup>A2</sup> Cooler Cor 10.0 Unc 10.2  
Cooler Dsc 1g B/w @Lab  
Wet/Packs Packing other  
C.I. do W/O

TB <sup>H2</sup> Cooler Cor 6.3 Unc 6.5  
Cooler Dsc 1g B/w @Lab  
Wet/Packs Packing other  
C.I. do W/O



580-62103 Chain of Custody

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# Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-62103-2

**Login Number: 62103**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-62133-1  
Client Project/Site: Parcel 15 -POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Cindy Ryals



Authorized for release by:  
9/19/2016 3:09:51 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

**Job ID: 580-62133-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-62133-1

#### Receipt

The samples were received on 8/31/2016 12:06 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 16.0° C. The temperature is considered acceptable as the samples were received by the laboratory on the same day of collection and there is evidence the chilling process has begun.

#### GC/MS Semi VOA

Method(s) 8270D SIM: The method blank for preparation batch 580-226783 and analytical batch 580-227036 contained Pentachlorophenol above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0: Due to high chloride content, dilutions were performed on the following samples to prevent damage to the instrument: WCTPW003A-10-E2 (580-62133-5), (580-62103-F-1), (580-62103-F-1 MS) and (580-62103-F-1 MSD). Some analytes may have been diluted out of the sample.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

**Client Sample ID: WCTPW004B-40-E2**

**Lab Sample ID: 580-62133-1**

**Date Collected: 08/31/16 09:00**

**Matrix: Water**

**Date Received: 08/31/16 12:06**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.070	J B	0.080	0.014	ug/L		09/06/16 14:46	09/08/16 21:51	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,4,6-Tribromophenol	93		44 - 125				09/06/16 14:46	09/08/16 21:51	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	20		1.0	0.19	mg/L			09/15/16 11:41	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	290		10	10	mg/L			09/01/16 08:42	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	18		1.0	0.19	mg/L			09/18/16 12:56	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

**Client Sample ID: WCTPW004B-10-E2**

**Lab Sample ID: 580-62133-2**

**Date Collected: 08/31/16 09:15**

**Matrix: Water**

**Date Received: 08/31/16 12:06**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.067	J B	0.080	0.014	ug/L		09/06/16 14:46	09/08/16 22:15	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,4,6-Tribromophenol	100		44 - 125				09/06/16 14:46	09/08/16 22:15	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	6.7		1.0	0.19	mg/L			09/15/16 11:41	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	230		10	10	mg/L			09/01/16 08:42	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	7.9		1.0	0.19	mg/L			09/18/16 12:56	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

**Client Sample ID: WCTPW004A-40-E2**

**Lab Sample ID: 580-62133-3**

**Date Collected: 08/31/16 09:35**

**Matrix: Water**

**Date Received: 08/31/16 12:06**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.061	J B	0.080	0.014	ug/L		09/06/16 14:46	09/08/16 22:40	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,4,6-Tribromophenol	92		44 - 125				09/06/16 14:46	09/08/16 22:40	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	9.9		1.0	0.19	mg/L			09/15/16 11:41	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	380		10	10	mg/L			09/01/16 08:42	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	11		1.0	0.19	mg/L			09/18/16 12:56	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

**Client Sample ID: WCTPW004A-10-E2**

**Lab Sample ID: 580-62133-4**

**Date Collected: 08/31/16 09:50**

**Matrix: Water**

**Date Received: 08/31/16 12:06**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.067	J B	0.079	0.013	ug/L		09/06/16 14:46	09/08/16 23:04	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,4,6-Tribromophenol	102		44 - 125				09/06/16 14:46	09/08/16 23:04	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	4.1		1.0	0.19	mg/L			09/16/16 12:51	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	270		10	10	mg/L			09/01/16 08:42	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	9.1		1.0	0.19	mg/L			09/18/16 12:56	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

**Client Sample ID: WCTPW003A-10-E2**

**Lab Sample ID: 580-62133-5**

**Date Collected: 08/31/16 10:15**

**Matrix: Water**

**Date Received: 08/31/16 12:06**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	170		1.1	0.023	mg/L		09/09/16 15:23	09/12/16 12:20	1
Magnesium	500		110	13	mg/L		09/09/16 15:23	09/12/16 18:13	100
Potassium	170		3.3	0.15	mg/L		09/09/16 15:23	09/12/16 12:20	1
Sodium	5000		200	55	mg/L		09/09/16 15:23	09/12/16 12:27	100

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	4.4		1.0	0.19	mg/L			09/16/16 12:51	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	300		10	10	mg/L			09/01/16 08:42	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		200	30	mg/L			08/31/16 16:39	1000
Nitrite as N	ND		400	80	mg/L			08/31/16 16:39	1000
Chloride	8800		900	40	mg/L			08/31/16 16:39	1000
Nitrate as N	ND		200	20	mg/L			08/31/16 16:39	1000
Bromide	ND		500	60	mg/L			08/31/16 16:39	1000
Sulfate	2000		1200	260	mg/L			08/31/16 16:39	1000
Sulfide	ND		0.050	0.0070	mg/L			09/06/16 18:02	1
Dissolved Organic Carbon	4.8		1.0	0.19	mg/L			09/18/16 12:56	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.28		0.10	0.10	mg/L			08/31/16 18:22	1
Alkalinity	130		5.0	5.0	mg/L			09/06/16 15:01	1
Bicarbonate Alkalinity as CaCO3	130		5.0	5.0	mg/L			09/06/16 15:01	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			09/06/16 15:01	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			09/06/16 15:01	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-226783/1-A**  
**Matrix: Water**  
**Analysis Batch: 227036**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 226783**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.0724	J	0.080	0.014	ug/L		09/06/16 14:46	09/08/16 19:23	1
Surrogate	%Recovery	MB Qualifier	Limits			D	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	87		44 - 125				09/06/16 14:46	09/08/16 19:23	1

**Lab Sample ID: LCS 580-226783/2-A**  
**Matrix: Water**  
**Analysis Batch: 227036**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 226783**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	8.00	5.81		ug/L		73	20 - 134
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4,6-Tribromophenol	77		44 - 125				

**Lab Sample ID: LCSD 580-226783/3-A**  
**Matrix: Water**  
**Analysis Batch: 227036**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 226783**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	8.00	6.04		ug/L		75	20 - 134	4	35
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	78		44 - 125						

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-227148/20-A**  
**Matrix: Water**  
**Analysis Batch: 227261**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 227148**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		09/09/16 15:23	09/12/16 11:21	1
Magnesium	ND		1.1	0.13	mg/L		09/09/16 15:23	09/12/16 11:21	1
Potassium	ND		3.3	0.15	mg/L		09/09/16 15:23	09/12/16 11:21	1
Sodium	ND		2.0	0.55	mg/L		09/09/16 15:23	09/12/16 11:21	1

**Lab Sample ID: LCS 580-227148/21-A**  
**Matrix: Water**  
**Analysis Batch: 227261**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 227148**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	19.0		mg/L		95	80 - 120
Magnesium	20.0	18.3		mg/L		91	80 - 120
Potassium	20.0	18.9		mg/L		94	80 - 120
Sodium	20.0	18.4		mg/L		92	80 - 120

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

## Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 580-227148/22-A

Matrix: Water

Analysis Batch: 227261

Client Sample ID: Lab Control Sample Dup

Prep Type: Total Recoverable

Prep Batch: 227148

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Calcium	20.0	19.6		mg/L		98	80 - 120	3	20	
Magnesium	20.0	18.7		mg/L		94	80 - 120	2	20	
Potassium	20.0	19.4		mg/L		97	80 - 120	3	20	
Sodium	20.0	18.6		mg/L		93	80 - 120	1	20	

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-226445/3

Matrix: Water

Analysis Batch: 226445

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrite as N	ND		0.40	0.080	mg/L			08/31/16 09:15	1
Nitrate as N	ND		0.20	0.020	mg/L			08/31/16 09:15	1

Lab Sample ID: LCS 580-226445/4

Matrix: Water

Analysis Batch: 226445

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	RPD
Nitrite as N	5.00	5.22		mg/L		104	90 - 110	
Nitrate as N	5.00	5.38		mg/L		108	90 - 110	

Lab Sample ID: LCSD 580-226445/5

Matrix: Water

Analysis Batch: 226445

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Nitrite as N	5.00	5.23		mg/L		105	90 - 110	0	15	
Nitrate as N	5.00	5.28		mg/L		106	90 - 110	2	15	

Lab Sample ID: MB 580-226449/3

Matrix: Water

Analysis Batch: 226449

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Fluoride	ND		0.20	0.030	mg/L			08/31/16 09:15	1
Chloride	ND		0.90	0.040	mg/L			08/31/16 09:15	1
Bromide	ND		0.50	0.060	mg/L			08/31/16 09:15	1
Sulfate	ND		1.2	0.26	mg/L			08/31/16 09:15	1

Lab Sample ID: LCS 580-226449/4

Matrix: Water

Analysis Batch: 226449

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	RPD
Fluoride	5.00	5.41		mg/L		108	90 - 110	
Chloride	50.0	52.7		mg/L		105	90 - 110	
Bromide	5.00	5.37		mg/L		107	90 - 110	

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID:** LCS 580-226449/4  
**Matrix:** Water  
**Analysis Batch:** 226449

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	54.0		mg/L		108	90 - 110

**Lab Sample ID:** LCSD 580-226449/5  
**Matrix:** Water  
**Analysis Batch:** 226449

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	5.45		mg/L		109	90 - 110	1	15
Chloride	50.0	52.8		mg/L		106	90 - 110	0	15
Bromide	5.00	5.36		mg/L		107	90 - 110	0	15
Sulfate	50.0	54.2		mg/L		108	90 - 110	0	15

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID:** MB 580-226415/1  
**Matrix:** Water  
**Analysis Batch:** 226415

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			08/31/16 18:22	1

**Lab Sample ID:** LCS 580-226415/2  
**Matrix:** Water  
**Analysis Batch:** 226415

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	2.05		mg/L		102	90 - 110

**Lab Sample ID:** 580-62133-5 MS  
**Matrix:** Water  
**Analysis Batch:** 226415

**Client Sample ID:** WCTPW003A-10-E2  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	0.28		2.00	1.95		mg/L		84	80 - 120

**Lab Sample ID:** 580-62133-5 MSD  
**Matrix:** Water  
**Analysis Batch:** 226415

**Client Sample ID:** WCTPW003A-10-E2  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	0.28		2.00	2.05		mg/L		89	80 - 120	5	20

**Lab Sample ID:** 580-62133-5 DU  
**Matrix:** Water  
**Analysis Batch:** 226415

**Client Sample ID:** WCTPW003A-10-E2  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
ortho-Phosphate	0.28		0.320		mg/L		12	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

## Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 580-226785/2  
Matrix: Water  
Analysis Batch: 226785

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	108		mg/L		108	85 - 115

## Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 580-226446/1  
Matrix: Water  
Analysis Batch: 226446

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			09/01/16 08:42	1

Lab Sample ID: LCS 580-226446/2  
Matrix: Water  
Analysis Batch: 226446

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	30.0	25.2		mg/L		84	70.6 - 120

## Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-340990/4  
Matrix: Water  
Analysis Batch: 340990

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			09/06/16 18:02	1

Lab Sample ID: LCS 280-340990/3  
Matrix: Water  
Analysis Batch: 340990

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.410	0.362		mg/L		88	80 - 119

## Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-227536/3  
Matrix: Water  
Analysis Batch: 227536

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			09/15/16 11:41	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: LCS 580-227536/4**

**Matrix: Water**

**Analysis Batch: 227536**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.88		mg/L		99	85 - 115

**Lab Sample ID: MB 580-227547/3**

**Matrix: Water**

**Analysis Batch: 227547**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			09/16/16 12:51	1

**Lab Sample ID: LCS 580-227547/4**

**Matrix: Water**

**Analysis Batch: 227547**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	11.1		mg/L		111	85 - 115

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-227550/3**

**Matrix: Water**

**Analysis Batch: 227550**

**Client Sample ID: Method Blank**

**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			09/18/16 12:56	1

**Lab Sample ID: LCS 580-227550/4**

**Matrix: Water**

**Analysis Batch: 227550**

**Client Sample ID: Lab Control Sample**

**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	11.0		mg/L		110	85 - 115

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

**Client Sample ID: WCTPW004B-40-E2**

**Lab Sample ID: 580-62133-1**

**Date Collected: 08/31/16 09:00**

**Matrix: Water**

**Date Received: 08/31/16 12:06**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			226783	09/06/16 14:46	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	227036	09/08/16 21:51	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	226446	09/01/16 08:42	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		1	227550	09/18/16 12:56	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227536	09/15/16 11:41	Z1T	TAL SEA

**Client Sample ID: WCTPW004B-10-E2**

**Lab Sample ID: 580-62133-2**

**Date Collected: 08/31/16 09:15**

**Matrix: Water**

**Date Received: 08/31/16 12:06**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			226783	09/06/16 14:46	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	227036	09/08/16 22:15	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	226446	09/01/16 08:42	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		1	227550	09/18/16 12:56	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227536	09/15/16 11:41	Z1T	TAL SEA

**Client Sample ID: WCTPW004A-40-E2**

**Lab Sample ID: 580-62133-3**

**Date Collected: 08/31/16 09:35**

**Matrix: Water**

**Date Received: 08/31/16 12:06**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			226783	09/06/16 14:46	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	227036	09/08/16 22:40	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	226446	09/01/16 08:42	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		1	227550	09/18/16 12:56	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227536	09/15/16 11:41	Z1T	TAL SEA

**Client Sample ID: WCTPW004A-10-E2**

**Lab Sample ID: 580-62133-4**

**Date Collected: 08/31/16 09:50**

**Matrix: Water**

**Date Received: 08/31/16 12:06**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			226783	09/06/16 14:46	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	227036	09/08/16 23:04	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	226446	09/01/16 08:42	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		1	227550	09/18/16 12:56	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227547	09/16/16 12:51	Z1T	TAL SEA

# Lab Chronicle

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

**Client Sample ID: WCTPW003A-10-E2**

**Lab Sample ID: 580-62133-5**

**Date Collected: 08/31/16 10:15**

**Matrix: Water**

**Date Received: 08/31/16 12:06**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			227148	09/09/16 15:23	MKN	TAL SEA
Dissolved	Analysis	6010C		1	227261	09/12/16 12:20	HJM	TAL SEA
Dissolved	Prep	3005A			227148	09/09/16 15:23	MKN	TAL SEA
Dissolved	Analysis	6010C		100	227261	09/12/16 12:27	HJM	TAL SEA
Dissolved	Prep	3005A			227148	09/09/16 15:23	MKN	TAL SEA
Dissolved	Analysis	6010C		100	227302	09/12/16 18:13	HJM	TAL SEA
Dissolved	Analysis	300.0		1000	226445	08/31/16 16:39	RSB	TAL SEA
Dissolved	Analysis	300.0		1000	226449	08/31/16 16:39	RSB	TAL SEA
Dissolved	Analysis	365.1		1	226415	08/31/16 18:22	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	226785	09/06/16 15:01	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	226446	09/01/16 08:42	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	340990	09/06/16 18:02	NAP	TAL DEN
Dissolved	Analysis	SM 5310B		1	227550	09/18/16 12:56	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	227547	09/16/16 12:51	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 2540D		Water	Total Suspended Solids
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-03-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 S2 D		Water	Sulfide

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 -POT

TestAmerica Job ID: 580-62133-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-62133-1	WCTPW004B-40-E2	Water	08/31/16 09:00	08/31/16 12:06
580-62133-2	WCTPW004B-10-E2	Water	08/31/16 09:15	08/31/16 12:06
580-62133-3	WCTPW004A-40-E2	Water	08/31/16 09:35	08/31/16 12:06
580-62133-4	WCTPW004A-10-E2	Water	08/31/16 09:50	08/31/16 12:06
580-62133-5	WCTPW003A-10-E2	Water	08/31/16 10:15	08/31/16 12:06

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- 10
- 11



**GSI**  
Water Laboratory, Inc.  
55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

Field Sampler(s):  
ECH, RF

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>		Brooks - Ben Wozniak- 206-753-6158
Project # or PO #: 603.002.012	Custody Seals intact?	<b>Brooks</b>		
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	<b>Analysis Requested</b>		
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)
Report to email: echughes@gsiws.com, cryals@gsiws.com	Therm ID No.: _____ Therm Exp. _____	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**
<b>Analysis Turnaround Time:</b>		300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)
Standard 21 day TAT on Most Analyses		6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol
Rush 5 day on Dissolved Metals in Porewater		1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
WCTPW004B-40-E2	8/31	900	2933	G	PW	7	X	X	X									X	X	X		
WCTPW004B-10-E2	8/31	915	22425	G	PW	7	X	X	X									X	X	X		
WCTPW004A-40-E2	8/31	935	3412	G	PW	7	X	X	X									X	X	X		
WCTPW004A-10-E2	8/31	950	22,271	G	PW	7	X	X	X									X	X	X		
WCTPW003A-10-E2	8/31	1015	12,618	G	PW	12	X	X	X	X	X	X	X	X	X			X	R	*		R=Rush

\* = Do As Speciation IF dissolved As is > 36 ug/L

<b>Possible Hazard Identification:</b>	<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>
Are samples hazardous? <input checked="" type="checkbox"/> No	<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic	
Relinquished by: <u>Erin Hughes</u> Date/Time: <u>8/31/16 1206</u>	Received by: <u>B. Stoll SEATA</u> Date/Time: <u>8.31.16 1206</u>
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____	Received in Laboratory by: _____ Date/Time: _____

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



TBZ Cooler Cor 16.0 Unc 162  
 Cooler Desc 15 B/w @ Lab  
 Wet/Pack Packing etc  
 Cli do 8/19/2016

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Lab PM: Escarez, Christabel C		COC No: 580-40515.1	
Shipping/Receiving		E-Mail: christabel.escarez@testamericainc.com		Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.		Address: 4955 Yarrow Street		Job #: 580-62133-1	
City: Arvada		State, Zip: CO, 80002		Phone: 303-736-0100(Tel) 303-431-7171(Fax)	
Project Name: Parcel 15 -POT		Project #: 58009703		SSOW#:	
Site:		Sample Date: 8/31/16		Sample Time: 10:15 Pacific	
Sample Identification - Client ID (Lab ID): WCTPW003A-10-E2 (580-62133-5)		Sample Type (C=comp, G=grab):		Matrix (W=water, S=solid, O=oil/water/oil, BT= tissue, A=Air)	
Sample Date: 8/31/16		Sample Time: 10:15 Pacific		Preservation Code: Water	
Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>		SM4500_S2_D/FIELD_FLTRD Dissolved Sulfide, field-filtered	
Total Number of containers: 1		Special Instructions/Note:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNH4O2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)	
<b>Possible Hazard Identification</b>					
Unconfirmed					
Deliverable Requested: I, II, III, IV, Other (specify)					
Primary Deliverable Rank: 2					
Empty Kit Relinquished by:					
Relinquished by: <i>B. Staal</i>					
Relinquished by:					
Relinquished by:					
Custody Seal No. <input type="checkbox"/> Yes <input type="checkbox"/> No					
Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No					
Cooler Temperature(s) *C and Other Remarks: 1.3 IR S.O.O transfer RP 9-3-16					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/QC Requirements:					
Time: _____ Date: _____					
Received by: <i>Reed Pelt</i> Date/Time: 9-3-16 0935 Company: THD					
Received by: _____ Date/Time: _____ Company: _____					
Received by: _____ Date/Time: _____ Company: _____					
Method of Shipment: _____					



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-62133-1

**Login Number: 62133**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-62133-1

**Login Number: 62133**

**List Number: 2**

**Creator: White, Denise E**

**List Source: TestAmerica Denver**

**List Creation: 09/03/16 11:53 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-62140-1  
Client Project/Site: Parcel 15 - POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Cindy Ryals



Authorized for release by:  
9/19/2016 2:53:02 PM

Christabel Escarez, Project Manager I  
(253)922-2310  
[christabel.escarez@testamericainc.com](mailto:christabel.escarez@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-62140-1

**Job ID: 580-62140-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-62140-1

#### Receipt

The samples were received on 8/31/2016 8:15 AM; the samples arrived in good condition, properly preserved, and on ice. The temperature of the cooler at receipt was 5.5° C.

#### GC/MS Semi VOA

Method(s) 8270D SIM: The method blank for preparation batch 580-226783 and analytical batch 580-227036 contained Pentachlorophenol above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-62140-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-62140-1

**Client Sample ID: MW006R-E2**

**Lab Sample ID: 580-62140-1**

**Date Collected: 08/30/16 16:40**

**Matrix: Water**

**Date Received: 08/31/16 08:15**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.10	B	0.080	0.014	ug/L		09/06/16 14:46	09/08/16 21:01	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,4,6-Tribromophenol	92		44 - 125				09/06/16 14:46	09/08/16 21:01	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	23		2.0	0.38	mg/L			09/16/16 12:51	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	100		10	10	mg/L			09/06/16 09:39	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	24		2.0	0.38	mg/L			09/18/16 12:56	2

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-62140-1

**Client Sample ID: MW005R-E2**

**Lab Sample ID: 580-62140-2**

**Date Collected: 08/30/16 15:20**

**Matrix: Water**

**Date Received: 08/31/16 08:15**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.11	B	0.080	0.014	ug/L		09/06/16 14:46	09/08/16 21:26	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,4,6-Tribromophenol	80		44 - 125				09/06/16 14:46	09/08/16 21:26	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	25		20	3.8	mg/L			09/16/16 12:51	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	4.2		2.0	2.0	mg/L			09/06/16 09:39	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	22		2.0	0.38	mg/L			09/18/16 12:56	2

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-62140-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-226783/1-A**  
**Matrix: Water**  
**Analysis Batch: 227036**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 226783**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.0724	J	0.080	0.014	ug/L		09/06/16 14:46	09/08/16 19:23	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	87		44 - 125				09/06/16 14:46	09/08/16 19:23	1

**Lab Sample ID: LCS 580-226783/2-A**  
**Matrix: Water**  
**Analysis Batch: 227036**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 226783**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	8.00	5.81		ug/L		73	20 - 134
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4,6-Tribromophenol	77		44 - 125				

**Lab Sample ID: LCSD 580-226783/3-A**  
**Matrix: Water**  
**Analysis Batch: 227036**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 226783**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	8.00	6.04		ug/L		75	20 - 134	4	35
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	78		44 - 125						

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 580-226725/1**  
**Matrix: Water**  
**Analysis Batch: 226725**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			09/06/16 09:39	1

**Lab Sample ID: LCS 580-226725/2**  
**Matrix: Water**  
**Analysis Batch: 226725**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	30.0	30.8		mg/L		103	70.6 - 120

# QC Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-62140-1

## Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-227547/3  
 Matrix: Water  
 Analysis Batch: 227547

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			09/16/16 12:51	1

Lab Sample ID: LCS 580-227547/4  
 Matrix: Water  
 Analysis Batch: 227547

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	11.1		mg/L		111	85 - 115

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

Lab Sample ID: MB 580-227550/3  
 Matrix: Water  
 Analysis Batch: 227550

Client Sample ID: Method Blank  
 Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			09/18/16 12:56	1

Lab Sample ID: LCS 580-227550/4  
 Matrix: Water  
 Analysis Batch: 227550

Client Sample ID: Lab Control Sample  
 Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	11.0		mg/L		110	85 - 115

# Lab Chronicle

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-62140-1

**Client Sample ID: MW006R-E2**

**Lab Sample ID: 580-62140-1**

**Date Collected: 08/30/16 16:40**

**Matrix: Water**

**Date Received: 08/31/16 08:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			226783	09/06/16 14:46	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	227036	09/08/16 21:01	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	226725	09/06/16 09:39	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		2	227550	09/18/16 12:56	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	227547	09/16/16 12:51	Z1T	TAL SEA

**Client Sample ID: MW005R-E2**

**Lab Sample ID: 580-62140-2**

**Date Collected: 08/30/16 15:20**

**Matrix: Water**

**Date Received: 08/31/16 08:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			226783	09/06/16 14:46	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	227036	09/08/16 21:26	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	226725	09/06/16 09:39	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		2	227550	09/18/16 12:56	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	227547	09/16/16 12:51	Z1T	TAL SEA

**Laboratory References:**

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-62140-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 2540D		Water	Total Suspended Solids
SM 5310B		Water	Dissolved Organic Carbon
SM 5310B		Water	Total Organic Carbon

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-62140-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-62140-1	MW006R-E2	Water	08/30/16 16:40	08/31/16 08:15
580-62140-2	MW005R-E2	Water	08/30/16 15:20	08/31/16 08:15

1

2

3

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6

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8

9

10

11

Field Sampler(s): *BSI*

GSI  
55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>						<b>Lab PM</b>									
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>			<b>Brooks</b>			Brooks - Ben Wozniak- 206- 753-6158									
Project # or PO #: 603.002.012	Custody Seals intact?	<b>Analysis Requested</b>															
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1000W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	TestAmerica - Christabel Escarez- 253.248.4975
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____°C																
Report to email: echughes@gsws.com, cryals@gsws.com	Therm ID No.: _____ Therm Exp. _____																
<b>Analysis Turnaround Time:</b>																	
Standard 21 day TAT on Most Analyses																	
Rush 5 day on Dissolved Metals in Porewater																	

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1000W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes		
MWOODR-EZ	8/31/16	1640	756	G	N	7	X	X	X									X	X	X				
MWOODSR-EZ	↓	1520	450	↓	↓	↓	X	X	X									X	X	X				



580-62140 Chain of Custody

<b>Possible Hazard Identification:</b>		<b>Sample Disposal</b> (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)	
Are samples hazardous? <input checked="" type="checkbox"/> No		<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year	
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic			
Relinquished by: <i>Erin Hughes</i>	Date/Time: <i>8/31/16 8:15</i>	Received by: <i>B. Hall SEATA</i>	Date/Time: <i>8.31.16 0815</i>
Relinquished by:	Date/Time:	Received by:	Date/Time:
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other	Tracking #:	Received in Laboratory by:	Date/Time:

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

*TB Cooler IR<sup>2</sup> Cor 5.5 Unc 5.6  
 Cooler Dsc 19 B/w @ Lab  
 Wet Packs Packing other  
 Clido WPL 9/19/2016*



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-62140-1

**Login Number: 62140**


**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Svabik-Seror, Philip M**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	



 55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

## Chain of Custody Record

Field Sampler(s):  
*GSI*

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>	<b>Lab PM</b>
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>	<b>Brooks</b>
Project # or PO #: 603.002.012	Custody Seals intact?		
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	<b>Analysis Requested</b>	
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C	SM5310B: Total Organic Carbon SM5310B: Dissolved Organic Carbon (field filtered) SM4500 S 2D: Sulfide (dissolved; field filtered) SM2540D: Total Suspended Solids (TSS) 6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)* 300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)** 300.0: Nitrate and Nitrite (dissolved; field filtered) SM2320B: Alkalinity (field filtered)** 365.1: Major Anions (Orthophosphate; dissolved; field filtered) 6020A: Arsenic (total) 6020A: Arsenic, Iron, and Manganese (dissolved; field filtered) 8260D SIM: Pentachlorophenol 1638M: Arsenic (total) 1000M: Arsenic, Iron, and Manganese (dissolved; field filtered)*** Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Brooks- Ben Wozniak- 206-753-6158
Report to email: echughes@gsiws.com, cryals@gsiws.com	Therm ID No.: _____ Therm Exp. _____		TestAmerica - Christabel Escarez- 253.248.4975
<b>Analysis Turnaround Time:</b>			
Standard 21 day TAT on Most Analyses			
Rush 5 day on Dissolved Metals in Porewater			

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Analysis Requested														Sample Specific Notes	
							SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)**	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1000M: Arsenic, Iron, and Manganese (dissolved; field filtered)***		Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)
WCTSW001B-EZ	8/15/16	1015	4643	G	W	11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
WCTSW002B-EZ		1030	3740	G		10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	no diss As
WCTSW003B-EZ		945	3050	G		10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
WCTSW004B-EZ		1145	574	G		7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	no cations
WCTSW501B-EZ		1015	4643	G		10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
WCT BHSW001-EZ		1330	35236	G		10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
VSSW001-EZ		1330	231	G		10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
OF2-EZ		1130	20029	G		5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	no sulfide
OF3-EZ		1140	8801	G		5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	no sulfide
MW002R-EZ		1600	825	G		7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW003-EZ		1500	687	G		8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	WU As@TA
MW002-EZ	8/15	1645	895	G	W	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW004-EZ	8/15	1820	256	G	W	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

<b>Possible Hazard Identification:</b> Are samples hazardous? <input checked="" type="checkbox"/> No If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic select hazard(s): Relinquished by: <i>[Signature]</i> Date/Time: 8/16/16 0913 Relinquished by: _____ Date/Time: _____ Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____	<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b> <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year Received by: <i>B. Stoll SEA TA</i> Date/Time: 8/16/16 0913 Received by: _____ Date/Time: _____ Received in Laboratory by: _____ Date/Time: _____
--	---

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



TB ~~SE~~ Cooler <sup>4.1</sup> Cor <sup>4.3</sup> Unc  
Cooler Dsc ~~B/S/W~~ @Lab  
~~Wex~~/Packs Packing ~~OTW~~  
Clide w/o

TB Cooler ~~SE~~ Cor 5.7 Unc 5.9  
Cooler Dsc ~~B/S/W~~ @Lab  
~~Wex~~/Packs Packing ~~OTW~~  
Clide w/o

TB Cooler ~~SE~~ Cor 5.9 Unc 6.1  
Cooler Dsc ~~B/S/W~~ @Lab  
~~Wex~~/Packs Packing ~~OTW~~  
Clide w/o

TB Cooler ~~SE~~ Cor 5.7 Unc 5.9  
Cooler Dsc ~~B/S/W~~ @Lab  
~~Wex~~/Packs Packing ~~OTW~~  
Clide w/o

61748



55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

Field Sampler(s): [Signature]

# Chain of Custody Record

**Client Contact**  
 Project Name: Parcel 15 - POT  
 Project # or PO #: 603.002.012  
 Project Manager: Erin Hughes/Cindy Ryals  
 Phone #: 971-200-8528 and 971-200-8531  
 Report to email: echughes@gsiws.com, cryals@gsiws.com

**For Lab Use Only:**  
 SDG: \_\_\_\_\_  
 Custody Seals intact? \_\_\_\_\_  
 Hand delivered? \_\_\_\_\_  
 Cooler Temp: \_\_\_\_\_ °C  
 Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Analysis Turnaround Time:**  
 Standard 21 day TAT on Most Analyses  
 Rush 5 day on Dissolved Metals in Porewater

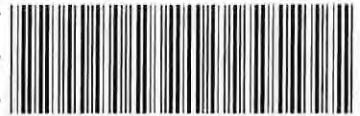
**Laboratory**  
 TestAmerica  
 Brooks

**Analysis Requested**

SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)**	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)
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**Lab PM**  
 Brooks - Ben Wozniak - 206-753-6158  
 TestAmerica - Christabel Escarez - 253.248.4975

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)**	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes	
MW007-EZ	8/16	1405	2822	G	W	12	X	X	X	X	X	X	X	X	X					X	X	X	
MW007-EZ-BAT-2	8/16	1440	2822	G	W	2																	Brooks Batch Samples
MW007-EZ-BAT-2	↓	↓	↓	↓	↓	2																	
MW007-EZ-BAT-3	↓	↓	↓	↓	↓	2																	
MW007-EZ-BAT-4	↓	↓	↓	↓	↓	2																	
MW007-EZ-BAT-5	↓	↓	↓	↓	↓	2																	
MW007-EZ-BAT-6	↓	↓	↓	↓	↓	2																	



580-61748 Chain of Custody

**Possible Hazard Identification:**  
 Are samples hazardous?  No  
 If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
 select hazard(s): \_\_\_\_\_  
 Relinquished by: [Signature] Date/Time: 8/16/18 1545  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
 Received by: B. Hall SEANTA Date/Time: 8.16.18 1600  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

TB Cooler IR2 Cor 2.6 Unc 2.8  
 Cooler Desc 1g B/w a Lab  
 Wet Packs Packing other  
 Cl c6 w/o



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

# Chain of Custody Record

61763

Field Sampler(s): *[Signature]*

<b>Client Contact</b>		<b>For Lab Use Only:</b>					<b>Laboratory</b>										<b>Lab PM</b>							
Project Name: Parcel 15 - POT		SDG: _____					<b>TestAmerica</b>					<b>Brooks</b>					Brooks- Ben Wozniak- 206-753-6158							
Project # or PO #: 603.002.012		Custody Seals intact?					<b>Analysis Requested</b>																	
Project Manager: Erin Hughes/Cindy Ryals		Hand delivered?					SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	TestAmerica - Christabel Escarez- 253.248.4975		
Phone #: 971-200-8528 and 971-200-8531		Cooler Temp: _____ °C					SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)			
Report to email: echughes@gsiws.com, cryals@gsiws.com		Therm ID No.: _____ Therm Exp. _____					SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes		
<b>Analysis Turnaround Time:</b>							SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes		
Standard 21 day TAT on Most Analyses							SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes		
Rush 5 day on Dissolved Metals in Porewater							SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes		
<b>Sample Identification</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Field Conductivity (uS/cm)</b>	<b>Sample Type (C=Comp, G=Grab)</b>	<b>Matrix</b>	<b>Total # of Cont.</b>	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes	
MW009-EZ		8/16	1855	2315	G	W	12	X	X	X	X	X	X	X	X	X					X	X	X	




580-61763 Chain of Custody

<b>Possible Hazard Identification:</b>		<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>														
Are samples hazardous? <input checked="" type="checkbox"/> No		<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year														
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic																
Relinquished by: <i>[Signature]</i>		Date/Time: 8/17/16 1300					Received by: <i>[Signature]</i> SEA TA					Date/Time: 8.17.16 1300				
Relinquished by: <i>[Signature]</i>		Date/Time: _____					Received by: _____					Date/Time: _____				
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other		Tracking #: _____					Received in Laboratory by: _____					Date/Time: _____				

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

TB Cooler IR2 Cor 5.7 Unc 5.8  
 Cooler Dsc (g B/w) @ Lab  
 Wet Packs Packing other  
 Cle do wlo

 55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

Field Sampler(s):  
GSI

**Client Contact**  
Project Name: Parcel 15 - POT  
Project # or PO #: 603.002.012  
Project Manager: Erin Hughes/Cindy Ryals  
Phone #: 971-200-8528 and 971-200-8531  
Report to email: echughes@gsiws.com, cryals@gsiws.com

**For Lab Use Only:**  
SDG: \_\_\_\_\_  
Custody Seals intact? \_\_\_\_\_  
Hand delivered? \_\_\_\_\_  
Cooler Temp: \_\_\_\_\_ °C  
Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Laboratory**

**Lab PM**

**Analysis Turnaround Time:**  
Standard 21 day TAT on Most Analyses  
Rush 5 day on Dissolved Metals in Porewater

**TestAmerica** | **Brooks**

**Analysis Requested**

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.
B-00SR-EZ	8/11/16	1520	580.5	G	N	10
B-50SR-EZ		1600	580			8
HCO02-EZ		1530	1216			12
MW00B-EZ		1745	2254			6
MN010-EZ		1540	1367			13
MN05510-EZ		1600	1367			12

SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)
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Brooks- Ben Wozniak- 206-753-6158

TestAmerica - Christabel Escarez- 253.248.4975



580-61788 Chain of Custody

TBA<sup>2</sup> Cooler Cor 2.0 Unc 2.2 - TB Cooler IR<sup>2</sup> Cor 0.8 Unc 0.9  
Cooler Dsc 1g G/B w a Lab - Cooler Dsc 1g G/B w a Lab  
Wet Packs Packing other - Wet Packs Packing other  
Cl: do w/o - Cl: do w/o


Sample Specific Notes

**Possible Hazard Identification:**  
Are samples hazardous?  No  
If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
select hazard(s):  
Relinquished by: Renee Foster GSI Date/Time: 8/11/16 0825  
Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
Received by: B. Hill SEATTA Date/Time: 8/18/16 0825  
Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Special Instructions/QC Requirements**  
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
Please contact Cindy Ryals at 971-200-8531 with any questions.



 55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

Field Sampler(s):  
GSI

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>		Brooks - Ben Wozniak- 206-753-6158
Project # or PO #: 603.002.012	Custody Seals intact?	<b>Brooks</b>		
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	<b>Analysis Requested</b>		
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)
Report to email: echughes@gsiws.com, cryals@gsiws.com	Therm ID No.: _____ Therm Exp. _____	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**
<b>Analysis Turnaround Time:</b>		300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate, dissolved; field filtered)
Standard 21 day TAT on Most Analyses		6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol
Rush 5 day on Dissolved Metals in Porewater		1638M: Arsenic (total)	1630W: ARSENIC, IRON, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate, dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1630W: ARSENIC, IRON, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
WCTPN001A-10-E2	8/30/15	1030	22658	G	W	12	X	X	X	X	X	X	X	X	X				X	X	X	
WCTPN001A-40-E2		1000	10534																			
WCTPN001B-10-E2		917	21617																			
WCTPN001B-40-E2		900	13408																			
WCTPN002A-10-E2		1230	32876																			
WCTPN002A-40-E2		1150	24469																			
WCTPN002B-10-E2		1130	28314																			
WCTPN002B-40-E2		1115	19911																			
WCTPN003A-40-E2		1315	NM																			
WCTPN003B-10-E2		1300	21959																			
WCTPN003B-40-E2		1245	2811																			
WCTPH5MB-E2	8/30/16	1600	NM	G	W	1	X	X	X									X	X	X		

<b>Possible Hazard Identification:</b>	<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>
Are samples hazardous? <input checked="" type="checkbox"/> No	<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year
If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic	Received by: <i>B. Stell</i> <i>SEPT 17</i> Date/Time: <i>8:30 16 1605</i>
Select hazard(s):	Received by: _____ Date/Time: _____
Relinquished by: <i>[Signature]</i> GSI Date/Time: <i>01/31/16 1605</i>	Received in Laboratory by: _____ Date/Time: _____
Relinquished by: _____ Date/Time: _____	
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____	


**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

*NM = not measured*





Loc: 580  
62133

 55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

Field Sampler(s):  
ECH, RF

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>		Brooks - Ben Wozniak- 206-753-6158
Project # or PO #: 603.002.012	Custody Seals intact?	<b>Brooks</b>		
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	<b>Analysis Requested</b>		
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)
Report to email: echughes@gsiws.com, cryals@gsiws.com	Therm ID No.: _____ Therm Exp. _____	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**
<b>Analysis Turnaround Time:</b>		300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)
Standard 21 day TAT on Most Analyses		6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol
Rush 5 day on Dissolved Metals in Porewater		1638M: Arsenic (total)	1030W: Arsenic, Nitrite, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030W: Arsenic, Nitrite, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
WCTPW004B-40-E2	8/31	900	2933	G	PW	7	X	X	X									X	X	X		
WCTPW004B-10-E2	8/31	915	22425	G	PW	7	X	X	X									X	X	X		
WCTPW004A-40-E2	8/31	935	3412	G	PW	7	X	X	X									X	X	X		
WCTPW004A-10-E2	8/31	950	22,271	G	PW	7	X	X	X									X	X	X		
WCTPW003A-10-E2	8/31	1015	12,618	G	PW	12	X	X	X	X	X	X	X	X	X			X	R	*		R=Rush * = Do As Speciation if dissolved As is > 36 ug/L

<b>Possible Hazard Identification:</b>	<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>
Are samples hazardous? <input checked="" type="checkbox"/> No	<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic	
Relinquished by: <u>Erin Hughes</u> Date/Time: <u>8/31/16 1206</u>	Received by: <u>B. Zuel SEATA</u> Date/Time: <u>8.31.16 1206</u>
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____	Received in Laboratory by: _____ Date/Time: _____

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



580-62133 Chain of Custody

TAZ Cooler Cor 16.0 Unc 16.2  
 Cooler Dsc 15 B/w @ Lab  
 Wet/Packs Packing ok  
 Clido w/o

**GSI**  
 55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

Field Sampler(s):  
**GSI**

### Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>		Brooks - Ben Wozniak - 206-753-6158
Project # or PO #: 603.002.012	Custody Seals intact?	<b>Brooks</b>		
Project Manager: Erin Hughes/Cindy Ryals	Hand delivered?	<b>Analysis Requested</b>		
Phone #: 971-200-8528 and 971-200-8531	Cooler Temp: _____ °C	SM5310B: Total Organic Carbon	SM2320B: Alkalinity (field filtered)**	TestAmerica - Christabel Escarez - 253.248.4975
Report to email: echughes@gsiws.com, cryals@gsiws.com	Therm ID No.: _____ Therm Exp. _____	SM5310B: Dissolved Organic Carbon (field filtered)	365.1: Major Anions (Orthophosphate, dissolved; field filtered)	
<b>Analysis Turnaround Time:</b>		SM4500 S 2D: Sulfide (dissolved; field filtered)	6020A: Arsenic (total)	
Standard 21 day TAT on Most Analyses		SM2540D: Total Suspended Solids (TSS)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	
Rush 5 day on Dissolved Metals in Porewater		6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	8260D SIM: Pentachlorophenol	
		300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	1638M: Arsenic (total)	
		300.0: Nitrate and Nitrite (dissolved; field filtered)	1030M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	
			Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)**	365.1: Major Anions (Orthophosphate, dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1030M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
MN006R-EZ	8/31/16	1640	756	G	N	7	X	X		X									X	X	X	
MN005R-EZ	↓	1520	450	↓	↓	↓	X	X	X									X	X	X		



<b>Possible Hazard Identification:</b>	<b>Sample Disposal</b> (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)
Are samples hazardous? <input checked="" type="checkbox"/> No	
If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic	<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year
select hazard(s):	
Relinquished by: <i>Erin Hughes</i> Date/Time: <i>8/31/16 8:15</i>	Received by: <i>B. Hall SEATA</i> Date/Time: <i>8.31.16 0815</i>
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____	Received in Laboratory by: _____ Date/Time: _____

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

TB Cooler IR<sup>2</sup> Cor 5.5 Unc 5.6  
 Cooler Dsc 1g Blw @ Lab  
 Wet/Packs Packing other  
 Cli do W/O



# **Appendix C.3: Event 3 - Laboratory Reports and Chain of Custody Forms**



18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • [info@brooksapplied.com](mailto:info@brooksapplied.com)

January 12, 2017

GSI Water Solutions, Inc.  
ATTN: Erin Carroll Hughes  
55 SW Yamhill St. Suite 300  
Portland OR 97204  
[cryals@gsiws.com](mailto:cryals@gsiws.com)

RE: Project GSI-PR1601a Waters

Client Project: Parcel 15 – POT (603.002.012)

Ms. Carroll Hughes,

On November 17, 2016 through November 21, 2016, Brooks Applied Labs (BAL) received twenty-nine (29) aqueous samples. The samples were logged-in for the analyses of dissolved arsenic (As), dissolved iron (Fe), dissolved manganese (Mn), total recoverable As, and As speciation, as per the chain-of-custody (COC) forms. All samples requiring filtration were field-filtered by the client prior to reception at BAL. All samples were received and stored according to BAL SOPs and EPA methodology.

#### **Dissolved Metals Quantitation by ICP-QQQ-MS**

All aqueous samples for dissolved metals were directly analyzed for As, Fe, and Mn by inductively coupled plasma triple quadrupole mass spectrometry (ICP-QQQ-MS). The ICP-QQQ-MS determinative method uses advanced interference removal techniques to ensure accuracy of the sample results. For more information, please visit the *Interference Reduction Technology* section on our website, [brooksapplied.com](http://brooksapplied.com).

#### **Sequence 1601393**

The method blanks identified as B163023-BLK1 through B163023-BLK4 contained Fe above the method reporting limit (MRL) of 0.85 µg/L, ranging from 1.75 to 2.10 µg/L. The Fe concentrations of all samples reported in sequence 1601393 either were greater than ten times the contamination observed in the method blanks or were less than the method reporting limit. Since the elevated blanks did not significantly impact any of the results reported from this sequence, no qualification was required.

The recovery of the matrix spike duplicate identified as B163023-MSD1 was above the control limit of 125% for As (139%). The concentration of the added spike (10,100 µg/L) was less than the native sample concentration (22,890 µg/L). Since greater variability is expected when the added spike is less than the native sample concentration, no corrective action or qualification of the results was necessary. The acceptable As recoveries obtained for the other quality control in batch B163023, including those of the certified reference materials B163023-SRM1 (101%) and B163023-SRM2 (98%) instead demonstrate the accuracy of the applied methods.

#### **Sequence 1601413**

The continuing calibration blank immediately preceding the samples (identified as CCB6) contained arsenic above the MRL of 0.040 µg/L, at a concentration of 0.056 µg/L. The As concentrations of all other CCBs bracketing the submitted samples were below the MRL. Four rinse blanks were analyzed immediately after CCB6 and before any client samples, and the As concentrations of these blanks

were all below the MRL (containing no more than 0.028 µg/L). Since these rinse blanks and the remaining CCBs demonstrate freedom from any significant contamination prior to and during the analysis of the client samples, no corrective action or qualification of the results was deemed necessary.

#### Sequence 1601487

The RPD associated with the matrix duplicate B163023-DUP8 was above the control limit of 20% for As (21%). The concentrations of arsenic in the native sample (0.922 µg/L) and matrix duplicate (0.745µg/L) were both below the method reporting limit (MRL) of 1.01 µg/L. Since greater variability is expected at concentrations below the MRL, no corrective action or qualification of the results was necessary. The acceptable RPDs obtained for As for the other matrix duplicate sets in batch B163023 instead demonstrate the precision of the applied methods.

#### Total Recoverable Metals Quantitation by ICP-QQQ-MS

All aqueous samples for total recoverable metals were digested on a hotblock apparatus with aliquots of with nitric and hydrochloric acids. The resulting digests were analyzed for As via ICP-QQQ-MS.

#### Sequence 1601439

Two continuing calibration blanks bracketing B163021 contained As above the method reporting limit of 0.040 µg/L. CCBH – which bracketed the samples MW009-E3 and B006R-E3 – contained 0.225 µg/L As. CCBI – which bracketed the samples B006R-E3, OF#2-E3 (and its associated quality control set B163021-DUP2, B163021-MS2, B163021-MSD2), OF#3-E3, and MW003-E3 – contained 0.050 µg/L As. In all of these cases the As concentrations of the samples were greater than ten times the observed As carryover. Since the elevated CCBs did not significantly impact the reported sample results, no corrective action or qualification of the results was necessary. All other CCBs bracketing samples reported from sequence 1601439 were within acceptance limits.

#### Arsenic Speciation by IC-ICP-CRC-MS

All aqueous samples for As speciation were analyzed using ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS). In accordance with the project agreement, As speciation was defined as dissolved arsenite [As(III)], arsenate [As(V)], monomethylarsonic acid [MMAs], and dimethylarsinic acid [DMAs]. Arsenic species are chromatographically separated on an ion exchange column and then quantified using inductively coupled plasma collision reaction cell mass spectrometry (ICP-CRC-MS); for more information on this determinative technique, please visit the *Interference Reduction Technology* section on our website.

Instances where the matrix spike/matrix spike duplicate (MS/MSD) sets were spiked at a concentration less than 25% of the native sample result, the recoveries were not reported (**NR**) and the MSD RPD is not calculated (**N/C**), as they are not valid indicators of data quality.

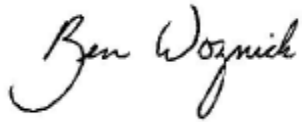
All results were *not* method blank corrected, as described in the calculations section of the relevant BAL SOPs, and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

All data was reported without further qualification, aside from concentration qualifiers. With the exceptions noted above, all other associated quality control results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information, please see the *Report*

*Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,

A handwritten signature in black ink that reads "Ben Wozniak". The signature is written in a cursive style with a large, looping initial "B".

Ben Wozniak  
Project Manager  
ben@brooksapplied.com



## Report Information

### Laboratory Accreditation

BAL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BAL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksapplied.com/resources/certificates-permits/>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BAL</b>	Brooks Applied Labs	<b>MS</b>	matrix spike
<b>BLK</b>	method blank	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCB</b>	continuing calibration blank	<b>N/C</b>	not calculated
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>D</b>	dissolved fraction	<b>RPD</b>	relative percent difference
<b>DUP</b>	duplicate	<b>SCV</b>	secondary calibration verification
<b>IBL</b>	instrument blank	<b>SOP</b>	standard operating procedure
<b>ICV</b>	initial calibration verification	<b>SRM</b>	standard reference material
<b>MDL</b>	method detection limit	<b>T</b>	total fraction
<b>MRL</b>	method reporting limit	<b>TR</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>J</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J-1</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Applied Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BAL.





## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
HC-002-E3	1647053-01	Water	Sample	11/16/2016	11/17/2016
HC-002-E3	1647053-02	Water	Sample	11/16/2016	11/17/2016
MW007-E3	1647053-03	Water	Sample	11/16/2016	11/17/2016
MW007-E3	1647053-04	Water	Sample	11/16/2016	11/17/2016
MW009-E3	1647053-05	Water	Sample	11/16/2016	11/17/2016
MW009-E3	1647053-06	Water	Sample	11/16/2016	11/17/2016
B001R-E3	1647053-07	Water	Sample	11/16/2016	11/17/2016
B001R-E3	1647053-08	Water	Sample	11/16/2016	11/17/2016
MW507-E3	1647053-09	Water	Sample	11/16/2016	11/17/2016
MW507-E3	1647053-10	Water	Sample	11/16/2016	11/17/2016
MW010-E3	1647053-11	Water	Sample	11/16/2016	11/17/2016
MW010-E3	1647053-12	Water	Sample	11/16/2016	11/17/2016
MW013-E3	1647053-13	Water	Sample	11/16/2016	11/17/2016
MW013-E3	1647053-14	Water	Sample	11/16/2016	11/17/2016
B006R-E3	1647053-15	Water	Sample	11/16/2016	11/17/2016
B006R-E3	1647053-16	Water	Sample	11/16/2016	11/17/2016
B003R-E3	1647053-17	Water	Sample	11/16/2016	11/17/2016
B003R-E3	1647053-18	Water	Sample	11/16/2016	11/17/2016
MW012-E3	1647053-19	Water	Sample	11/16/2016	11/17/2016
MW012-E3	1647053-20	Water	Sample	11/16/2016	11/17/2016
PWMB-E3	1647053-21	Water	Field Blank	11/14/2016	11/21/2016
PWMB-E3	1647053-22	Water	Field Blank	11/14/2016	11/21/2016
WCTSW001B-E3	1647053-23	Water	Sample	11/14/2016	11/21/2016
WCTSW001B-E3	1647053-24	Water	Sample	11/14/2016	11/21/2016
WCTSW002B-E3	1647053-25	Water	Sample	11/14/2016	11/21/2016
WCTSW002B-E3	1647053-26	Water	Sample	11/14/2016	11/21/2016
WCTSW003B-E3	1647053-27	Water	Sample	11/14/2016	11/21/2016
WCTSW003B-E3	1647053-28	Water	Sample	11/14/2016	11/21/2016
WCTSW004B-E3	1647053-29	Water	Sample	11/14/2016	11/21/2016
WCTSW004B-E3	1647053-30	Water	Sample	11/14/2016	11/21/2016
OF#2-E3	1647053-31	Water	Sample	11/14/2016	11/21/2016
OF#2-E3	1647053-32	Water	Sample	11/14/2016	11/21/2016
OF#3-E3	1647053-33	Water	Sample	11/14/2016	11/21/2016
OF#3-E3	1647053-34	Water	Sample	11/14/2016	11/21/2016
BWSW001-E3	1647053-35	Water	Sample	11/15/2016	11/21/2016
BWSW001-E3	1647053-36	Water	Sample	11/15/2016	11/21/2016
USSW001-E3	1647053-37	Water	Sample	11/15/2016	11/21/2016
USSW001-E3	1647053-38	Water	Sample	11/15/2016	11/21/2016
MW003-E3	1647053-39	Water	Sample	11/15/2016	11/21/2016
MW003-E3	1647053-40	Water	Sample	11/15/2016	11/21/2016
MW006R-E3	1647053-41	Water	Sample	11/15/2016	11/21/2016



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
MW006R-E3	1647053-42	Water	Sample	11/15/2016	11/21/2016
MW004-E3	1647053-43	Water	Sample	11/17/2016	11/21/2016
MW004-E3	1647053-44	Water	Sample	11/17/2016	11/21/2016
MW001-E3	1647053-45	Water	Sample	11/17/2016	11/21/2016
MW001-E3	1647053-46	Water	Sample	11/17/2016	11/21/2016
MW002R-E3	1647053-47	Water	Sample	11/17/2016	11/21/2016
MW002R-E3	1647053-48	Water	Sample	11/17/2016	11/21/2016
MW005R-E3	1647053-49	Water	Sample	11/17/2016	11/21/2016
MW005R-E3	1647053-50	Water	Sample	11/17/2016	11/21/2016
B005R-E3	1647053-51	Water	Sample	11/17/2016	11/21/2016
B005R-E3	1647053-52	Water	Sample	11/17/2016	11/21/2016
B505R-E3	1647053-53	Water	Sample	11/17/2016	11/21/2016
B505R-E3	1647053-54	Water	Sample	11/17/2016	11/21/2016
MW008-E3	1647053-55	Water	Sample	11/17/2016	11/21/2016
MW008-E3	1647053-56	Water	Sample	11/17/2016	11/21/2016
MW011-E3	1647053-57	Water	Sample	11/17/2016	11/21/2016
MW011-E3	1647053-58	Water	Sample	11/17/2016	11/21/2016



## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
As	Water	EPA 1638 Mod	12/12/2016	12/15/2016	B163021	1601439
As	Water	EPA 1638 Mod	12/12/2016	12/17/2016	B163021	1601454
As	Water	EPA 1638 Mod	12/12/2016	12/23/2016	B163021	1601487
As	Water	EPA 1638 Mod	12/12/2016	01/02/2017	B163021	1700003
As	Water	EPA 1638 Mod	11/24/2016	12/07/2016	B163023	1601393
As	Water	EPA 1638 Mod	11/24/2016	12/10/2016	B163023	1601413
As	Water	EPA 1638 Mod	11/24/2016	12/23/2016	B163023	1601487
As	Water	EPA 1638 Mod	11/24/2016	01/02/2017	B163023	1700003
As(III)	Water	IC-ICP-MS	11/29/2016	11/29/2016	B163056	1601357
As(V)	Water	IC-ICP-MS	11/29/2016	11/29/2016	B163056	1601357
DMAs	Water	IC-ICP-MS	11/29/2016	11/29/2016	B163056	1601357
Fe	Water	EPA 1638 Mod	12/20/2016	12/23/2016	B163280	1601487
Fe	Water	EPA 1638 Mod	11/24/2016	12/07/2016	B163023	1601393
MMAs	Water	IC-ICP-MS	11/29/2016	11/29/2016	B163056	1601357
Mn	Water	EPA 1638 Mod	11/24/2016	12/07/2016	B163023	1601393



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>B001R-E3</b>										
1647053-07	As	Water	TR	70400		11.6	40.4	µg/L	B163021	1601454
1647053-08	As	Water	D	72400		7.07	40.4	µg/L	B163023	1700003
1647053-08	As(III)	Water	D	45500		100	1000	µg/L	B163056	1601357
1647053-08	As(V)	Water	D	12900		100	1000	µg/L	B163056	1601357
1647053-08	DMAs	Water	D	≤ 150	U	150	1050	µg/L	B163056	1601357
1647053-08	Fe	Water	D	104000		283	859	µg/L	B163023	1601393
1647053-08	MMAAs	Water	D	≤ 150	U	150	1150	µg/L	B163056	1601357
1647053-08	Mn	Water	D	1860		21.2	63.6	µg/L	B163023	1601393
<b>B003R-E3</b>										
1647053-17	As	Water	TR	264		0.290	1.01	µg/L	B163021	1700003
1647053-18	As	Water	D	251		0.177	1.01	µg/L	B163023	1700003
1647053-18	Fe	Water	D	11100		101	404	µg/L	B163280	1601487
1647053-18	Mn	Water	D	597		0.530	1.59	µg/L	B163023	1601393
<b>B005R-E3</b>										
1647053-51	As	Water	TR	1.70		0.290	1.01	µg/L	B163021	1601439
1647053-52	As	Water	D	0.440	J	0.177	1.01	µg/L	B163023	1601413
1647053-52	Fe	Water	D	27600		7.07	21.5	µg/L	B163023	1601393
1647053-52	Mn	Water	D	1010		0.530	1.59	µg/L	B163023	1601393
<b>B006R-E3</b>										
1647053-15	As	Water	TR	123		0.290	1.01	µg/L	B163021	1601439
1647053-16	As	Water	D	79.5		0.177	1.01	µg/L	B163023	1601413
1647053-16	Fe	Water	D	81900		7.07	21.5	µg/L	B163023	1601393
1647053-16	Mn	Water	D	1420		0.530	1.59	µg/L	B163023	1601393
<b>B505R-E3</b>										
1647053-53	As	Water	TR	1.72		0.290	1.01	µg/L	B163021	1601439
1647053-54	As	Water	D	0.305	J	0.177	1.01	µg/L	B163023	1601413
1647053-54	Fe	Water	D	27800		7.07	21.5	µg/L	B163023	1601393
1647053-54	Mn	Water	D	1040		0.530	1.59	µg/L	B163023	1601393
<b>BWSW001-E3</b>										
1647053-35	As	Water	TR	2.25		0.290	1.01	µg/L	B163021	1601487
1647053-36	As	Water	D	2.53		0.177	1.01	µg/L	B163023	1601393
1647053-36	Fe	Water	D	11.1	J	7.07	21.5	µg/L	B163023	1601393
1647053-36	Mn	Water	D	18.2		0.530	1.59	µg/L	B163023	1601393



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>HC-002-E3</b>										
1647053-01	As	Water	TR	23800		11.6	40.4	µg/L	B163021	1601454
1647053-02	As	Water	D	22900		7.07	40.4	µg/L	B163023	1601393
1647053-02	As(III)	Water	D	16200		40.0	400	µg/L	B163056	1601357
1647053-02	As(V)	Water	D	3330		40.0	400	µg/L	B163056	1601357
1647053-02	DMAs	Water	D	≤ 60.0	U	60.0	420	µg/L	B163056	1601357
1647053-02	Fe	Water	D	104000		283	859	µg/L	B163023	1601393
1647053-02	MMAAs	Water	D	≤ 60.0	U	60.0	460	µg/L	B163056	1601357
1647053-02	Mn	Water	D	3830		21.2	63.6	µg/L	B163023	1601393
<b>MW001-E3</b>										
1647053-45	As	Water	TR	44.5		0.290	1.01	µg/L	B163021	1700003
1647053-46	As	Water	D	38.8		0.177	1.01	µg/L	B163023	1700003
1647053-46	Fe	Water	D	59800		7.07	21.5	µg/L	B163023	1601393
1647053-46	Mn	Water	D	2340		0.530	1.59	µg/L	B163023	1601393
<b>MW002R-E3</b>										
1647053-47	As	Water	TR	4.39		0.290	1.01	µg/L	B163021	1601439
1647053-48	As	Water	D	3.31		0.177	1.01	µg/L	B163023	1601393
1647053-48	Fe	Water	D	8.94	J	7.07	21.5	µg/L	B163023	1601393
1647053-48	Mn	Water	D	≤ 0.530	U	0.530	1.59	µg/L	B163023	1601393
<b>MW003-E3</b>										
1647053-39	As	Water	TR	17.2		0.290	1.01	µg/L	B163021	1601439
1647053-40	As	Water	D	17.3		0.177	1.01	µg/L	B163023	1601413
1647053-40	Fe	Water	D	53800		7.07	21.5	µg/L	B163023	1601393
1647053-40	Mn	Water	D	2230		0.530	1.59	µg/L	B163023	1601393
<b>MW004-E3</b>										
1647053-43	As	Water	TR	1.60		0.290	1.01	µg/L	B163021	1601487
1647053-44	As	Water	D	0.770	J	0.177	1.01	µg/L	B163023	1601393
1647053-44	Fe	Water	D	143		25.3	101	µg/L	B163280	1601487
1647053-44	Mn	Water	D	7.53		0.530	1.59	µg/L	B163023	1601393
<b>MW005R-E3</b>										
1647053-49	As	Water	TR	3.13		0.290	1.01	µg/L	B163021	1601439
1647053-50	As	Water	D	2.77		0.177	1.01	µg/L	B163023	1601393
1647053-50	Fe	Water	D	13200		7.07	21.5	µg/L	B163023	1601393
1647053-50	Mn	Water	D	183		0.530	1.59	µg/L	B163023	1601393



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MW006R-E3</b>										
1647053-41	As	Water	TR	2.80		0.290	1.01	µg/L	B163021	1601487
1647053-42	As	Water	D	1.91		0.177	1.01	µg/L	B163023	1601413
1647053-42	Fe	Water	D	39800		7.07	21.5	µg/L	B163023	1601393
1647053-42	Mn	Water	D	5650		21.2	63.6	µg/L	B163023	1601393
<b>MW007-E3</b>										
1647053-03	As	Water	TR	15.6		0.290	1.01	µg/L	B163021	1601454
1647053-04	As	Water	D	13.2		0.177	1.01	µg/L	B163023	1601413
1647053-04	As(III)	Water	D	3.75		0.100	1.00	µg/L	B163056	1601357
1647053-04	As(V)	Water	D	9.71		0.100	1.00	µg/L	B163056	1601357
1647053-04	DMAs	Water	D	≤ 0.150	U	0.150	1.05	µg/L	B163056	1601357
1647053-04	Fe	Water	D	59100		7.07	21.5	µg/L	B163023	1601393
1647053-04	MMAAs	Water	D	≤ 0.150	U	0.150	1.15	µg/L	B163056	1601357
1647053-04	Mn	Water	D	2770		21.2	63.6	µg/L	B163023	1601393
<b>MW008-E3</b>										
1647053-55	As	Water	TR	29.0		0.290	1.01	µg/L	B163021	1601439
1647053-56	As	Water	D	27.5		0.177	1.01	µg/L	B163023	1601413
1647053-56	Fe	Water	D	61800		7.07	21.5	µg/L	B163023	1601393
1647053-56	Mn	Water	D	1870		0.530	1.59	µg/L	B163023	1601393
<b>MW009-E3</b>										
1647053-05	As	Water	TR	95.8		0.290	1.01	µg/L	B163021	1601439
1647053-06	As	Water	D	83.6		0.177	1.01	µg/L	B163023	1601413
1647053-06	As(III)	Water	D	40.2		0.100	1.00	µg/L	B163056	1601357
1647053-06	As(V)	Water	D	45.5		0.100	1.00	µg/L	B163056	1601357
1647053-06	DMAs	Water	D	0.249	J	0.150	1.05	µg/L	B163056	1601357
1647053-06	Fe	Water	D	225000		7.07	21.5	µg/L	B163023	1601393
1647053-06	MMAAs	Water	D	≤ 0.150	U	0.150	1.15	µg/L	B163056	1601357
1647053-06	Mn	Water	D	3250		21.2	63.6	µg/L	B163023	1601393



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MW010-E3</b>										
1647053-11	As	Water	TR	53500		11.6	40.4	µg/L	B163021	1700003
1647053-12	As	Water	D	55400		7.07	40.4	µg/L	B163023	1700003
1647053-12	As(III)	Water	D	30600		100	1000	µg/L	B163056	1601357
1647053-12	As(V)	Water	D	13900		100	1000	µg/L	B163056	1601357
1647053-12	DMAs	Water	D	≤ 150	U	150	1050	µg/L	B163056	1601357
1647053-12	Fe	Water	D	170000		283	859	µg/L	B163023	1601393
1647053-12	MMAs	Water	D	≤ 150	U	150	1150	µg/L	B163056	1601357
1647053-12	Mn	Water	D	6270		21.2	63.6	µg/L	B163023	1601393
<b>MW011-E3</b>										
1647053-57	As	Water	TR	26.8		0.290	1.01	µg/L	B163021	1601439
1647053-58	As	Water	D	30.1		0.177	1.01	µg/L	B163023	1601413
1647053-58	Fe	Water	D	56600		7.07	21.5	µg/L	B163023	1601393
1647053-58	Mn	Water	D	2720		21.2	63.6	µg/L	B163023	1601393
<b>MW012-E3</b>										
1647053-19	As	Water	TR	39.2		0.290	1.01	µg/L	B163021	1700003
1647053-20	As	Water	D	36.5		0.177	1.01	µg/L	B163023	1700003
1647053-20	As(III)	Water	D	3.20		0.100	1.00	µg/L	B163056	1601357
1647053-20	As(V)	Water	D	29.0		0.100	1.00	µg/L	B163056	1601357
1647053-20	DMAs	Water	D	0.247	J	0.150	1.05	µg/L	B163056	1601357
1647053-20	Fe	Water	D	138000		7.07	21.5	µg/L	B163023	1601393
1647053-20	MMAs	Water	D	≤ 0.150	U	0.150	1.15	µg/L	B163056	1601357
1647053-20	Mn	Water	D	7130		21.2	63.6	µg/L	B163023	1601393
<b>MW013-E3</b>										
1647053-13	As	Water	TR	8630		11.6	40.4	µg/L	B163021	1700003
1647053-14	As	Water	D	8280		7.07	40.4	µg/L	B163023	1700003
1647053-14	As(III)	Water	D	7130		20.0	200	µg/L	B163056	1601357
1647053-14	As(V)	Water	D	1200		20.0	200	µg/L	B163056	1601357
1647053-14	DMAs	Water	D	≤ 30.0	U	30.0	210	µg/L	B163056	1601357
1647053-14	Fe	Water	D	63200		283	859	µg/L	B163023	1601393
1647053-14	MMAs	Water	D	≤ 30.0	U	30.0	230	µg/L	B163056	1601357
1647053-14	Mn	Water	D	5750		21.2	63.6	µg/L	B163023	1601393



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MW507-E3</b>										
1647053-09	As	Water	TR	14.7		0.290	1.01	µg/L	B163021	1601454
1647053-10	As	Water	D	14.7		0.177	1.01	µg/L	B163023	1601413
1647053-10	As(III)	Water	D	4.33		0.100	1.00	µg/L	B163056	1601357
1647053-10	As(V)	Water	D	8.00		0.100	1.00	µg/L	B163056	1601357
1647053-10	DMAs	Water	D	≤ 0.150	U	0.150	1.05	µg/L	B163056	1601357
1647053-10	Fe	Water	D	61100		7.07	21.5	µg/L	B163023	1601393
1647053-10	MMAAs	Water	D	≤ 0.150	U	0.150	1.15	µg/L	B163056	1601357
1647053-10	Mn	Water	D	2850		21.2	63.6	µg/L	B163023	1601393
<b>OF#2-E3</b>										
1647053-31	As	Water	TR	974		0.290	1.01	µg/L	B163021	1601439
1647053-32	As	Water	D	850		7.07	40.4	µg/L	B163023	1601393
1647053-32	Fe	Water	D	4850		25.3	101	µg/L	B163280	1601487
1647053-32	Mn	Water	D	1000		21.2	63.6	µg/L	B163023	1601393
<b>OF#3-E3</b>										
1647053-33	As	Water	TR	275		0.290	1.01	µg/L	B163021	1601439
1647053-34	As	Water	D	255		0.177	1.01	µg/L	B163023	1601393
1647053-34	Fe	Water	D	1230		7.07	21.5	µg/L	B163023	1601393
1647053-34	Mn	Water	D	481		0.530	1.59	µg/L	B163023	1601393
<b>PWMB-E3</b>										
1647053-21	As	Water	TR	≤ 0.290	U	0.290	1.01	µg/L	B163021	1601454
1647053-22	As	Water	D	0.012	J	0.007	0.040	µg/L	B163023	1601393
1647053-22	Fe	Water	D	≤ 1.01	U	1.01	4.04	µg/L	B163280	1601487
1647053-22	Mn	Water	D	0.163		0.021	0.064	µg/L	B163023	1601393
<b>USSW001-E3</b>										
1647053-37	As	Water	TR	1.72		0.290	1.01	µg/L	B163021	1601487
1647053-38	As	Water	D	0.808	J	0.177	1.01	µg/L	B163023	1601393
1647053-38	Fe	Water	D	738		7.07	21.5	µg/L	B163023	1601393
1647053-38	Mn	Water	D	53.9		0.530	1.59	µg/L	B163023	1601393
<b>WCTSW001B-E3</b>										
1647053-23	As	Water	TR	11.9		0.290	1.01	µg/L	B163021	1601454
1647053-24	As	Water	D	0.922	J	0.177	1.01	µg/L	B163023	1601487
1647053-24	Fe	Water	D	777		7.07	21.5	µg/L	B163023	1601393
1647053-24	Mn	Water	D	130		0.530	1.59	µg/L	B163023	1601393





## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTSW002B-E3</b>										
1647053-25	As	Water	TR	3.35		0.290	1.01	µg/L	B163021	1601454
1647053-26	As	Water	D	1.28		0.177	1.01	µg/L	B163023	1601393
1647053-26	Fe	Water	D	885		7.07	21.5	µg/L	B163023	1601393
1647053-26	Mn	Water	D	109		0.530	1.59	µg/L	B163023	1601393
<b>WCTSW003B-E3</b>										
1647053-27	As	Water	TR	1.64		0.290	1.01	µg/L	B163021	1601454
1647053-28	As	Water	D	1.06		0.177	1.01	µg/L	B163023	1601393
1647053-28	Fe	Water	D	834		7.07	21.5	µg/L	B163023	1601393
1647053-28	Mn	Water	D	110		0.530	1.59	µg/L	B163023	1601393
<b>WCTSW004B-E3</b>										
1647053-29	As	Water	TR	1.63		0.290	1.01	µg/L	B163021	1601454
1647053-30	As	Water	D	0.892	J	0.177	1.01	µg/L	B163023	1601393
1647053-30	Fe	Water	D	812		7.07	21.5	µg/L	B163023	1601393
1647053-30	Mn	Water	D	71.2		0.530	1.59	µg/L	B163023	1601393



## Accuracy & Precision Summary

Batch: B163021  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B163021-BS1	Laboratory Fortified Blank, (1634057) As		200.0	180.6	µg/L	90% 75-125	
B163021-BS2	Laboratory Fortified Blank, (1634057) As		200.0	169.1	µg/L	85% 75-125	
B163021-SRM1	Certified Reference Material, (1647033, TMDA 70.2 Reference Standard - Bottle1) As		42.30	39.32	µg/L	93% 75-125	
B163021-SRM2	Certified Reference Material, (1647033, TMDA 70.2 Reference Standard - Bottle1) As		42.30	38.04	µg/L	90% 75-125	
B163021-DUP6	Duplicate, (1647053-01) As	23750		20770	µg/L		13% 20
B163021-MS6	Matrix Spike, (1647053-01) As	23750	202.0	20610	µg/L	NR 75-125	
B163021-MSD6	Matrix Spike Duplicate, (1647053-01) As	23750	202.0	21800	µg/L	NR 75-125	N/C 20
B163021-DUP2	Duplicate, (1647053-31) As	974.4		1017	µg/L		4% 20
B163021-MS2	Matrix Spike, (1647053-31) As	974.4	202.0	1082	µg/L	NR 75-125	
B163021-MSD2	Matrix Spike Duplicate, (1647053-31) As	974.4	202.0	1183	µg/L	NR 75-125	N/C 20
B163021-DUP8	Duplicate, (1647053-45) As	44.50		44.37	µg/L		0.3% 20
B163021-MS8	Matrix Spike, (1647053-45) As	44.50	202.0	237.6	µg/L	96% 75-125	

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1647053  
**Client PM:** Erin Carroll Hughes  
**Client Project:** 603.002.014

## Accuracy & Precision Summary

**Batch:** B163021  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B163021-MSD8	Matrix Spike Duplicate, (1647053-45) As	44.50	202.0	245.7	µg/L	100% 75-125	3% 20



## Accuracy & Precision Summary

Batch: B163023  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B163023-SRM1</b>	<b>Certified Reference Material, (NC00370, T191 as SRM)</b>						
	As		4.080	4.137	µg/L	101% 75-125	
	Fe		83.00	78.60	µg/L	95% 75-125	
	Mn		27.00	27.35	µg/L	101% 75-125	
<b>B163023-SRM2</b>	<b>Certified Reference Material, (1649067, NIST 1643f (batch SRM))</b>						
	As		57.42	56.30	µg/L	98% 75-125	
	Fe		93.44	88.00	µg/L	94% 75-125	
	Mn		37.14	32.75	µg/L	88% 75-125	
<b>B163023-DUP1</b>	<b>Duplicate, (1647053-02)</b>						
	As	22890		22510	µg/L		2% 20
	Fe	104200		105600	µg/L		1% 20
	Mn	3831		4150	µg/L		8% 20
<b>B163023-MS1</b>	<b>Matrix Spike, (1647053-02)</b>						
	As	22890	10100	34770	µg/L	118% 75-125	
	Fe	104200	101000	197200	µg/L	92% 75-125	
	Mn	3831	10100	14290	µg/L	104% 75-125	
<b>B163023-MSD1</b>	<b>Matrix Spike Duplicate, (1647053-02)</b>						
	As	22890	10100	36890	µg/L	139% 75-125	6% 20
	Fe	104200	101000	210900	µg/L	106% 75-125	7% 20
	Mn	3831	10100	14950	µg/L	110% 75-125	4% 20
<b>B163023-DUP9</b>	<b>Duplicate, (1647053-08)</b>						
	As	72410		71910	µg/L		0.7% 20
<b>B163023-MS9</b>	<b>Matrix Spike, (1647053-08)</b>						
	As	72410	10100	65500	µg/L	NR 75-125	
<b>B163023-MSD9</b>	<b>Matrix Spike Duplicate, (1647053-08)</b>						
	As	72410	10100	91510	µg/L	NR 75-125	N/C 20



## Accuracy & Precision Summary

Batch: B163023  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B163023-DUP4	Duplicate, (1647053-24)						
	Fe	776.5		775.6	µg/L		0.1% 20
	Mn	130.0		126.7	µg/L		3% 20
B163023-DUP8	Duplicate, (1647053-24)						
	As	0.922		0.745	µg/L		21% 20
B163023-MS4	Matrix Spike, (1647053-24)						
	Fe	776.5	2525	3152	µg/L	94% 75-125	
	Mn	130.0	252.5	384.4	µg/L	101% 75-125	
B163023-MS8	Matrix Spike, (1647053-24)						
	As	0.922	252.5	282.2	µg/L	111% 75-125	
B163023-MSD4	Matrix Spike Duplicate, (1647053-24)						
	Fe	776.5	2525	3096	µg/L	92% 75-125	2% 20
	Mn	130.0	252.5	401.9	µg/L	108% 75-125	4% 20
B163023-MSD8	Matrix Spike Duplicate, (1647053-24)						
	As	0.922	252.5	277.8	µg/L	110% 75-125	2% 20
B163023-DUP5	Duplicate, (1647053-40)						
	Fe	53790		53610	µg/L		0.3% 20
	Mn	2225		2126	µg/L		5% 20
B163023-DUP7	Duplicate, (1647053-40)						
	As	17.26		16.18	µg/L		6% 20
B163023-MS5	Matrix Spike, (1647053-40)						
	Fe	53790	2525	55020	µg/L	NR 75-125	
	Mn	2225	252.5	2350	µg/L	NR 75-125	
B163023-MS7	Matrix Spike, (1647053-40)						
	As	17.26	252.5	276.7	µg/L	103% 75-125	



## Accuracy & Precision Summary

Batch: B163023  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B163023-MSD5	<b>Matrix Spike Duplicate, (1647053-40)</b>						
	Fe	53790	2525	49640	µg/L	NR 75-125	N/C 20
	Mn	2225	252.5	2304	µg/L	NR 75-125	N/C 20
B163023-MSD7	<b>Matrix Spike Duplicate, (1647053-40)</b>						
	As	17.26	252.5	262.2	µg/L	97% 75-125	5% 20



## Accuracy & Precision Summary

Batch: B163056  
 Lab Matrix: Water  
 Method: IC-ICP-MS

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B163056-BS1	Laboratory Fortified Blank, (1641087)						
	As(III)		5.000	4.771	µg/L	95% 75-125	
	As(V)		5.000	4.983	µg/L	100% 75-125	
	DMAs		3.198	3.228	µg/L	101% 75-125	
B163056-BS2	Laboratory Fortified Blank, (1545039)						
	MMA		5.270	4.339	µg/L	82% 75-125	
B163056-DUP1	Duplicate, (1647053-20)						
	As(III)	3.196		3.178	µg/L		0.6% 25
	As(V)	28.95		28.87	µg/L		0.3% 25
	DMAs	0.247		0.222	µg/L		11% 25
	MMA	ND		ND	µg/L		N/C 25
B163056-MS1	Matrix Spike, (1647053-20)						
	As(III)	3.196	50.00	55.46	µg/L	105% 75-125	
	As(V)	28.95	50.00	82.05	µg/L	106% 75-125	
	DMAs	0.247	52.10	55.56	µg/L	106% 75-125	
	MMA	ND	58.65	62.13	µg/L	106% 75-125	
B163056-MSD1	Matrix Spike Duplicate, (1647053-20)						
	As(III)	3.196	50.00	55.49	µg/L	105% 75-125	0.05% 25
	As(V)	28.95	50.00	81.23	µg/L	105% 75-125	1% 25
	DMAs	0.247	52.10	55.98	µg/L	107% 75-125	0.8% 25
	MMA	ND	58.65	62.20	µg/L	106% 75-125	0.1% 25



## Accuracy & Precision Summary

Batch: B163280  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B163280-SRM1	Certified Reference Material, (NC00370, T191 as SRM) Fe		83.00	78.64	µg/L	95% 75-125	
B163280-SRM2	Certified Reference Material, (1649067, NIST 1643f (batch SRM)) Fe		93.44	83.47	µg/L	89% 75-125	
B163280-DUP1	Duplicate, (1647053-18) Fe	11140		11240	µg/L		0.9% 20
B163280-MS1	Matrix Spike, (1647053-18) Fe	11140	10100	21000	µg/L	98% 75-125	
B163280-MSD1	Matrix Spike Duplicate, (1647053-18) Fe	11140	10100	21160	µg/L	99% 75-125	0.8% 20
B163280-DUP2	Duplicate, (1647053-44) Fe	142.6		158.3	µg/L		10% 20
B163280-MS2	Matrix Spike, (1647053-44) Fe	142.6	2525	2531	µg/L	95% 75-125	
B163280-MSD2	Matrix Spike Duplicate, (1647053-44) Fe	142.6	2525	2416	µg/L	90% 75-125	5% 20



**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1647053  
**Client PM:** Erin Carroll Hughes  
**Client Project:** 603.002.014

## Method Blanks & Reporting Limits

**Batch:** B163021  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units		
B163021-BLK1	0.019	µg/L		
B163021-BLK2	0.013	µg/L		
B163021-BLK3	0.019	µg/L		
B163021-BLK4	0.014	µg/L		
<b>Average:</b>	<b>0.016</b>		<b>Standard Deviation:</b>	<b>0.003</b>
<b>Limit:</b>	<b>0.080</b>		<b>Limit:</b>	<b>0.023</b>
			<b>MDL:</b>	<b>0.023</b>
			<b>MRL:</b>	<b>0.080</b>



## Method Blanks & Reporting Limits

**Batch:** B163023  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units		
B163023-BLK1	0.005	µg/L		
B163023-BLK2	0.007	µg/L		
B163023-BLK3	0.007	µg/L		
B163023-BLK4	0.004	µg/L		
<b>Average:</b>	<b>0.006</b>		<b>Standard Deviation:</b>	<b>0.002</b>
<b>Limit:</b>	<b>0.040</b>		<b>Limit:</b>	<b>0.007</b>
			<b>MDL:</b>	<b>0.007</b>
			<b>MRL:</b>	<b>0.040</b>

**Analyte:** Fe

Sample	Result	Units		
B163023-BLK1	2.10	µg/L		
B163023-BLK2	1.85	µg/L		
B163023-BLK3	2.04	µg/L		
B163023-BLK4	1.75	µg/L		
<b>Average:</b>	<b>1.94</b>		<b>Standard Deviation:</b>	<b>0.16</b>
<b>Limit:</b>	<b>0.85</b>		<b>Limit:</b>	<b>0.28</b>
			<b>MDL:</b>	<b>0.28</b>
			<b>MRL:</b>	<b>0.85</b>

**Analyte:** Mn

Sample	Result	Units		
B163023-BLK1	0.035	µg/L		
B163023-BLK2	0.038	µg/L		
B163023-BLK3	0.050	µg/L		
B163023-BLK4	0.031	µg/L		
<b>Average:</b>	<b>0.039</b>		<b>Standard Deviation:</b>	<b>0.008</b>
<b>Limit:</b>	<b>0.063</b>		<b>Limit:</b>	<b>0.021</b>
			<b>MDL:</b>	<b>0.021</b>
			<b>MRL:</b>	<b>0.063</b>



## Method Blanks & Reporting Limits

**Batch:** B163056  
**Matrix:** Water  
**Method:** IC-ICP-MS  
**Analyte:** As(III)

Sample	Result	Units	
B163056-BLK1	0.00	µg/L	
B163056-BLK2	0.00	µg/L	
B163056-BLK3	0.00	µg/L	
B163056-BLK4	0.00	µg/L	
<b>Average:</b>	0.000		<b>MDL:</b> 0.002
<b>Limit:</b>	0.020		<b>MRL:</b> 0.020

**Analyte:** As(V)

Sample	Result	Units	
B163056-BLK1	0.002	µg/L	
B163056-BLK2	0.002	µg/L	
B163056-BLK3	0.001	µg/L	
B163056-BLK4	0.001	µg/L	
<b>Average:</b>	0.002		<b>MDL:</b> 0.002
<b>Limit:</b>	0.020		<b>MRL:</b> 0.020

**Analyte:** DMAs

Sample	Result	Units	
B163056-BLK1	0.00	µg/L	
B163056-BLK2	0.00	µg/L	
B163056-BLK3	0.00	µg/L	
B163056-BLK4	0.00	µg/L	
<b>Average:</b>	0.000		<b>MDL:</b> 0.003
<b>Limit:</b>	0.021		<b>MRL:</b> 0.021



## Method Blanks & Reporting Limits

**Analyte:** MMAs

<b>Sample</b>	<b>Result</b>	<b>Units</b>	
B163056-BLK1	0.00005	µg/L	
B163056-BLK2	-0.0003	µg/L	
B163056-BLK3	-0.0004	µg/L	
B163056-BLK4	-0.0003	µg/L	
<b>Average:</b> 0.000			<b>MDL:</b> 0.003
<b>Limit:</b> 0.023			<b>MRL:</b> 0.023



## Method Blanks & Reporting Limits

**Batch:** B163280  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** Fe

Sample	Result	Units		
B163280-BLK1	0.20	µg/L		
B163280-BLK2	0.18	µg/L		
B163280-BLK3	0.10	µg/L		
B163280-BLK4	-0.02	µg/L		
<b>Average:</b>	0.12		<b>Standard Deviation:</b>	0.10
<b>Limit:</b>	4.00		<b>Limit:</b>	1.00
			<b>MDL:</b>	1.00
			<b>MRL:</b>	4.00



## Sample Containers

<b>Lab ID:</b> 1647053-01		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> HC-002-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler

<b>Lab ID:</b> 1647053-02		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> HC-002-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	not provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	not provided		Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1647053-03		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> MW007-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler

<b>Lab ID:</b> 1647053-04		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> MW007-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	not provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	not provided		Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1647053-05		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> MW009-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler



## Sample Containers

<b>Lab ID:</b> 1647053-06		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> MW009-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	not provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	not provided		Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1647053-07		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> B001R-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler

<b>Lab ID:</b> 1647053-08		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> B001R-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	not provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	not provided		Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1647053-09		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> MW507-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler



## Sample Containers

<b>Lab ID:</b> 1647053-10		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> MW507-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	not provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	not provided		Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1647053-11		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> MW010-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler

<b>Lab ID:</b> 1647053-12		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> MW010-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	not provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	not provided		Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1647053-13		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> MW013-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler





## Sample Containers

<b>Lab ID:</b> 1647053-14		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> MW013-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	not provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	not provided		Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1647053-15		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> B006R-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler

<b>Lab ID:</b> 1647053-16		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> B006R-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1647053-17		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> B003R-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler

<b>Lab ID:</b> 1647053-18		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/16/2016	
<b>Sample:</b> B003R-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2	Cooler

**Comments:** field filtered



## Sample Containers

<b>Lab ID:</b> 1647053-19		<b>Report Matrix:</b> Water			<b>Collected:</b> 11/16/2016	
<b>Sample:</b> MW012-E3		<b>Sample Type:</b> Sample			<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2 Cooler

<b>Lab ID:</b> 1647053-20		<b>Report Matrix:</b> Water			<b>Collected:</b> 11/16/2016	
<b>Sample:</b> MW012-E3		<b>Sample Type:</b> Sample			<b>Received:</b> 11/17/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1641109	<2 Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	not provided	Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	not provided	Cooler

**Comments:** field filtered

<b>Lab ID:</b> 1647053-21		<b>Report Matrix:</b> Water			<b>Collected:</b> 11/14/2016	
<b>Sample:</b> PWMB-E3		<b>Sample Type:</b> Field Blank			<b>Received:</b> 11/21/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2 Cooler 2

<b>Lab ID:</b> 1647053-22		<b>Report Matrix:</b> Water			<b>Collected:</b> 11/14/2016	
<b>Sample:</b> PWMB-E3		<b>Sample Type:</b> Field Blank			<b>Received:</b> 11/21/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1% HNO3 (BAL)	1644020	<2 Cooler 2

<b>Lab ID:</b> 1647053-23		<b>Report Matrix:</b> Water			<b>Collected:</b> 11/14/2016	
<b>Sample:</b> WCTSW001B-E3		<b>Sample Type:</b> Sample			<b>Received:</b> 11/21/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2 Cooler 2



## Sample Containers

<b>Lab ID:</b> 1647053-24 <b>Sample:</b> WCTSW001B-E3 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 125mL	<b>Lot</b> 16-0193	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1%HNO3 (BAL)	<b>P-Lot</b> 1644020	<b>Collected:</b> 11/14/2016 <b>Received:</b> 11/21/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Lab ID:</b> 1647053-25 <b>Sample:</b> WCTSW002B-E3 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 125mL	<b>Lot</b> 16-0193	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1%HNO3 (BAL)	<b>P-Lot</b> 1644020	<b>Collected:</b> 11/14/2016 <b>Received:</b> 11/21/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Lab ID:</b> 1647053-26 <b>Sample:</b> WCTSW002B-E3 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 125mL	<b>Lot</b> 16-0193	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1%HNO3 (BAL)	<b>P-Lot</b> 1644020	<b>Collected:</b> 11/14/2016 <b>Received:</b> 11/21/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Lab ID:</b> 1647053-27 <b>Sample:</b> WCTSW003B-E3 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 125mL	<b>Lot</b> 16-0193	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1%HNO3 (BAL)	<b>P-Lot</b> 1644020	<b>Collected:</b> 11/14/2016 <b>Received:</b> 11/21/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Lab ID:</b> 1647053-28 <b>Sample:</b> WCTSW003B-E3 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 125mL	<b>Lot</b> 16-0193	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1%HNO3 (BAL)	<b>P-Lot</b> 1644020	<b>Collected:</b> 11/14/2016 <b>Received:</b> 11/21/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2
<b>Lab ID:</b> 1647053-29 <b>Sample:</b> WCTSW004B-E3 <b>Des Container</b> A Bottle HDPE ICP-W	<b>Size</b> 125mL	<b>Lot</b> 16-0193	<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample <b>Preservation</b> 1%HNO3 (BAL)	<b>P-Lot</b> 1644020	<b>Collected:</b> 11/14/2016 <b>Received:</b> 11/21/2016 <b>pH</b> <b>Ship. Cont.</b> <2 Cooler 2



## Sample Containers

Lab ID: 1647053-30		Report Matrix: Water				Collected: 11/14/2016	
Sample: WCTSW004B-E3		Sample Type: Sample				Received: 11/21/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 2

Lab ID: 1647053-31		Report Matrix: Water				Collected: 11/14/2016	
Sample: OF#2-E3		Sample Type: Sample				Received: 11/21/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 2

Lab ID: 1647053-32		Report Matrix: Water				Collected: 11/14/2016	
Sample: OF#2-E3		Sample Type: Sample				Received: 11/21/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 2

Lab ID: 1647053-33		Report Matrix: Water				Collected: 11/14/2016	
Sample: OF#3-E3		Sample Type: Sample				Received: 11/21/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 2

Lab ID: 1647053-34		Report Matrix: Water				Collected: 11/14/2016	
Sample: OF#3-E3		Sample Type: Sample				Received: 11/21/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 2

Lab ID: 1647053-35		Report Matrix: Water				Collected: 11/15/2016	
Sample: BWSW001-E3		Sample Type: Sample				Received: 11/21/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 2



## Sample Containers

Lab ID:	Sample:	Report Matrix:	Sample Type:	Collected:
1647053-36	BWSW001-E3	Water	Sample	11/15/2016
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)
				<b>P-Lot</b>
				1644020
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler 2
1647053-37	USSW001-E3	Water	Sample	11/15/2016
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)
				<b>P-Lot</b>
				1644020
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler 2
1647053-38	USSW001-E3	Water	Sample	11/15/2016
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)
				<b>P-Lot</b>
				1644020
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler 2
1647053-39	MW003-E3	Water	Sample	11/15/2016
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)
				<b>P-Lot</b>
				1644020
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler 3
1647053-40	MW003-E3	Water	Sample	11/15/2016
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)
				<b>P-Lot</b>
				1644020
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler 3
1647053-41	MW006R-E3	Water	Sample	11/15/2016
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)
				<b>P-Lot</b>
				1644020
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler 3



## Sample Containers

Lab ID:	Sample:	Des	Container	Size	Lot	Report Matrix:	Sample Type:	Preservation	P-Lot	Collected:	Received:	pH	Ship. Cont.
1647053-42	MW006R-E3	A	Bottle HDPE ICP-W	125mL	16-0193	Water	Sample	1%HNO3 (BAL)	1644020	11/15/2016	11/21/2016	<2	Cooler 3
1647053-43	MW004-E3	A	Bottle HDPE ICP-W	125mL	16-0193	Water	Sample	1%HNO3 (BAL)	1644020	11/17/2016	11/21/2016	<2	Cooler 3
1647053-44	MW004-E3	A	Bottle HDPE ICP-W	125mL	16-0193	Water	Sample	1%HNO3 (BAL)	1644020	11/17/2016	11/21/2016	<2	Cooler 3
1647053-45	MW001-E3	A	Bottle HDPE ICP-W	125mL	16-0193	Water	Sample	1%HNO3 (BAL)	1644020	11/17/2016	11/21/2016	<2	Cooler 3
1647053-46	MW001-E3	A	Bottle HDPE ICP-W	125mL	16-0193	Water	Sample	1%HNO3 (BAL)	1644020	11/17/2016	11/21/2016	<2	Cooler 3
1647053-47	MW002R-E3	A	Bottle HDPE ICP-W	125mL	16-0193	Water	Sample	1%HNO3 (BAL)	1644020	11/17/2016	11/21/2016	<2	Cooler 3



## Sample Containers

Lab ID: 1647053-48		Report Matrix: Water				Collected: 11/17/2016	
Sample: MW002R-E3		Sample Type: Sample				Received: 11/21/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 3

Lab ID: 1647053-49		Report Matrix: Water				Collected: 11/17/2016	
Sample: MW005R-E3		Sample Type: Sample				Received: 11/21/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 3

Lab ID: 1647053-50		Report Matrix: Water				Collected: 11/17/2016	
Sample: MW005R-E3		Sample Type: Sample				Received: 11/21/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 3

Lab ID: 1647053-51		Report Matrix: Water				Collected: 11/17/2016	
Sample: B005R-E3		Sample Type: Sample				Received: 11/21/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 3

Lab ID: 1647053-52		Report Matrix: Water				Collected: 11/17/2016	
Sample: B005R-E3		Sample Type: Sample				Received: 11/21/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 3

Lab ID: 1647053-53		Report Matrix: Water				Collected: 11/17/2016	
Sample: B505R-E3		Sample Type: Sample				Received: 11/21/2016	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 3



## Sample Containers

<b>Lab ID:</b> 1647053-54 <b>Sample:</b> B505R-E3			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 11/17/2016 <b>Received:</b> 11/21/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 3
<b>Lab ID:</b> 1647053-55 <b>Sample:</b> MW008-E3			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 11/17/2016 <b>Received:</b> 11/21/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 3
<b>Lab ID:</b> 1647053-56 <b>Sample:</b> MW008-E3			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 11/17/2016 <b>Received:</b> 11/21/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 3
<b>Lab ID:</b> 1647053-57 <b>Sample:</b> MW011-E3			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 11/17/2016 <b>Received:</b> 11/21/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 3
<b>Lab ID:</b> 1647053-58 <b>Sample:</b> MW011-E3			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 11/17/2016 <b>Received:</b> 11/21/2016		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0193	1%HNO3 (BAL)	1644020	<2	Cooler 3





## Shipping Containers

### Cooler

**Received:** November 17, 2016 12:30  
**Tracking No:** N/A via Customer Drop-Off  
**Coolant Type:** Blue Ice  
**Temperature:** 1.8 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#9

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 2

**Received:** November 21, 2016 12:30  
**Tracking No:** N/A via Customer Drop-Off  
**Coolant Type:** Blue Ice  
**Temperature:** 3.3 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#8

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 3

**Received:** November 21, 2016 12:30  
**Tracking No:** N/A via Customer Drop-Off  
**Coolant Type:** Blue Ice  
**Temperature:** 0.5 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#8

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

# Chain of Custody Record

55 SW Yamhill St, Suite 300 Portland, Oregon 97204 503.239.8700		Chain of Custody Record					Field Sampler(s): <b>SK, PP, RF</b>																	
Client Contact Project Name: Parcel 15 - POT Project # or PO #: 603.002.014 Project Manager: Erin Hughes Phone #: 971-200-8528 Report to email: echughes@gslws.com		For Lab Use Only: SDG: _____ Custody Seals intact? Hand delivered? Cooler Temp: _____ °C Therm ID No.: _____ Therm Exp. _____					Laboratory <b>TestAmerica</b> <b>Brooks</b>			Lab PM Brooks Ben Wozniak 206-753-6158														
Analysis Turnaround Time: Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater							Analysis Requested			TestAmerica Rob Greer 253-922-5047														
Sample Identification		Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon (field filtered)	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	395.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1639M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes	
HC002-E3		11/16	1615	939	G	GW	6	X	X											X	X	X		
MW007-E3		11/16	1200	570	G	GW	13	X	X	X	X	X	X	X	X	X	X	X		X	X	X		
MW009-E3		11/16	1500	1192	G	GW	12	X	X	X	X	X	X	X	X	X	X	X		X	X	X		
B002R-E3		11/16	1100	1364	G	GW	12	X	X	X	X	X	X	X	X	X	X	X		X	X	X		
MW507-E3		11/16	1130	570	G	GW	12	X	X	X	X	X	X	X	X	X	X	X		X	X	X		
MW010-E3		11/16	1100	1302	G	GW	12	X	X	X	X	X	X	X	X	X	X	X		X	X	X		
MW013-E3		11/16	1215	830	G	GW	12	X	X	X	X	X	X	X	X	X	X	X		X	X	X		
<del>MW014-E3</del>																								
B006R-E3		11/16	1340	2165	G	GW	6	X	X	X	X									X	X			
B003R-E3		11/16	1645	4018	G	GW	6	X	X	X	X									X	X			
MW012-E3		11/16	1620	1173	G	GW		X	X	X	X	X	X	X	X	X	X	X		X	X	X		
Possible Hazard Identification: Are samples hazardous? <input checked="" type="checkbox"/> No If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic Relinquished by: <i>Steven Kehlman</i> Date/Time: 11/16/16 5:33pm		Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year					Received by: <i>Tom Blum</i> Date/Time: 11/16/16 17:33																	
Relinquished by: <i>[Signature]</i> Date/Time: 11/17/16 12:33							Received by: <i>[Signature]</i> Date/Time:																	
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other      Tracking #:							Received in Laboratory by: <i>Jan Walker</i> 11/17/16 12:30																	
Special Instructions/QC Requirements *Major Cations include calcium, magnesium, potassium, and sodium. **Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. ***Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3. Please contact Cindy Ryals at 971-200-8531 with any questions.																								

**GSI**  
 55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

Field Sample(s) Report 1647053

### Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>
<b>Project Name:</b> Parcel 15 - POT	SDG: _____
<b>Project # or PO #:</b> 603.002.014	Custody Seals intact?
<b>Project Manager:</b> Erin Hughes	Hand delivered?
<b>Phone #:</b> 971-200-8528	Cooler Temp: _____ °C
<b>Report to email:</b> echughes@gsiws.com	Therm ID No.: _____ Therm Exp. _____
<b>Analysis Turnaround Time:</b> Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater	

<b>Laboratory</b>		<b>Lab PM</b>
TestAmerica		Brooks
<b>Analysis Requested</b>		
SM1310B: Total Organic Carbon (field filtered)	SM5310B: Dissolved Organic Carbon (field filtered)	Brooks Ben Wozniak 206-753-6158
SM1500: S2B: Sulfide (dissolved, field filtered)	SM2540D: Total Suspended Solids (TSS)	TestAmerica Rob Greer 253-922-5047
6010C: Major Cations (Cap Mg, K, Na dissolved, field filtered)	30003: Major Anions (Br, Cl, F, SO4 dissolved, field filtered)	
30005: Nitrate and Nitrite (dissolved, field filtered)	SM2320B: Alkalinity (field filtered)	
3655: Major Anions (Orthophosphate dissolved, field filtered)	6020A: Arsenic (total)	
6020A: Arsenic (total)	6020A: Arsenic (Iron and Manganese dissolved, field filtered)	
8260B: SIM: Pentachlorophenol	1631M: Arsenic (total)	
1631M: Arsenic (total)	1638M: Arsenic (Iron and Manganese dissolved, field filtered)	
1638M: Arsenic (Iron and Manganese dissolved, field filtered)	Arsenic Speciation: As (III)/As(V) (dissolved, field filtered)	

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM1310B: Total Organic Carbon (field filtered)	SM5310B: Dissolved Organic Carbon (field filtered)	SM1500: S2B: Sulfide (dissolved, field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Cap Mg, K, Na dissolved, field filtered)	30003: Major Anions (Br, Cl, F, SO4 dissolved, field filtered)	30005: Nitrate and Nitrite (dissolved, field filtered)	SM2320B: Alkalinity (field filtered)	3655: Major Anions (Orthophosphate dissolved, field filtered)	6020A: Arsenic (total)	6020A: Arsenic (Iron and Manganese dissolved, field filtered)	8260B: SIM: Pentachlorophenol	1631M: Arsenic (total)	1638M: Arsenic (Iron and Manganese dissolved, field filtered)	Arsenic Speciation: As (III)/As(V) (dissolved, field filtered)	Sample Specific Notes
PWMB-E3	11/14/16	1615	-	G	W	9	X	X	X									X	X	X		
WCTSW001B-E3		2045	3515			10	X	X	X	X	X	X	X	X	X	X	X			X	X	
WCTSW002B-E3		2130	2080			10	X	X	X	X	X	X	X	X	X	X	X			X	X	
WCTSW003B-E3		2210	4498			6	X	X	X	X	X	X	X	X	X	X	X			X	X	
WCTSW004B-E3		2300	359			9	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
OF#2-E3		2010	12550			5	X	X	X	X	X	X	X	X	X	X	X			X	X	
OF#3-E3		2230	7178			5	X	X	X	X	X	X	X	X	X	X	X			X	X	
BHSH001-E3	11/15/16	1615	31080			10	X	X	X	X	X	X	X	X	X	X	X			X	X	
USSH001-E3		1445	166			10	X	X	X	X	X	X	X	X	X	X	X			X	X	
MW003-E3		1500	759			7	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
MW006R-E3		1550	681			7	X	X	X	X	X	X	X	X	X	X	X	X		X	X	

**Possible Hazard Identification:**  
 Are samples hazardous?  No  
 If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
 select hazard(s):  
 Relinquished by: Gene Power GSI Date/Time: 11/15/16 1645  
 Relinquished by: [Signature] Date/Time: 11/21/16 1233  
 Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
 Received by: [Signature] Date/Time: 11/15/16 1645  
 Received by: [Signature] Date/Time: 11/21/16 1210

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaC  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

**GSI**  
 55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

# Chain of Custody Record

Field Sampler(s):  
**GSI**

**Client Contact**  
 Project Name: Parcel 15 - POT  
 Project # or PO #: 603.002.014  
 Project Manager: Erin Hughes  
 Phone #: 971-200-8528  
 Report to email: echughes@gsiws.com

**For Lab Use Only:**  
 SDG: \_\_\_\_\_  
 Custody Seals intact?  
 Hand delivered?  
 Cooler Temp: \_\_\_\_\_ °C  
 Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Laboratory**  
 TestAmerica  
 Brooks

**Lab PM**  
 Brooks  
 Ben Wozniak  
 206-733-6158

**Analysis Turnaround Time:**  
 Standard 21 day TAT on Most Analyses  
 Rush 5 day on Dissolved Metals in Porewater

**Analysis Requested**

SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500-S2B: Sulfide (dissolved, field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na dissolved, field filtered)	30010: Major Anions (Br, Cl, F, SO4 dissolved, field filtered)	30020: Nitrate and Nitrite (dissolved, field filtered)	SM2320B: Alkalinity (field filtered)	3651: Major Anions (Orthophosphate dissolved, field filtered)	6020A: Arsenic (total)	6020A: Arsenic (iron and Manganese dissolved, field filtered)	8260B: SIMT: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic (iron and Manganese dissolved, field filtered)	Arsenic Speciation - As (III)/As (V) (dissolved, field filtered)
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TestAmerica  
 Rob Greer  
 253-922-5047

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500-S2B: Sulfide (dissolved, field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na dissolved, field filtered)	30010: Major Anions (Br, Cl, F, SO4 dissolved, field filtered)	30020: Nitrate and Nitrite (dissolved, field filtered)	SM2320B: Alkalinity (field filtered)	3651: Major Anions (Orthophosphate dissolved, field filtered)	6020A: Arsenic (total)	6020A: Arsenic (iron and Manganese dissolved, field filtered)	8260B: SIMT: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic (iron and Manganese dissolved, field filtered)	Arsenic Speciation - As (III)/As (V) (dissolved, field filtered)	Sample Specific Notes
MW004-E3	11/17/16	1030	75	G	W	7	X	X	X									X	X	X		
MW001-E3		1245	851			7	X	X	X									X	X	X		
MW002R-E3		1145	1027			7	X	X	X									X	X	X		
MW005R-E3		1235	400			7	X	X	X									X	X	X		
B005R-E3		1100	577			10	X	X	X	X						X	X	X	X	X		
B505R-E3		1100	577			8	X	X	X	X								X	X	X		
MW008-E3		1100	210			6	X	X	X	X								X	X			
MW011-E3	↓	1245	2049	↓	↓	6	X	X	X	X								X	X			

**Possible Hazard Identification:**  
 Are samples hazardous?  No  
 If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
 select hazard(s):  
 Relinquished by: **Peter Pellegrino - GSI** Date/Time: **11-17-16 1440**  
 Relinquished by: **[Signature]** Date/Time: **11/21/16 1233**  
 Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

**Sample Disposal** (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
 Received by: **B. Hall B. Gall - SEA TA** Date/Time: **11.17.16 1440**  
 Received by: **R. Manson** Date/Time: **11/21/16 1230**  
 Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.



18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • [info@brooksapplied.com](mailto:info@brooksapplied.com)

December 30, 2016

GSI Water Solutions, Inc.  
ATTN: Erin Carroll Hughes  
55 SW Yamhill St. Suite 300  
Portland OR 97204  
[echughes@gsiws.com](mailto:echughes@gsiws.com)

RE: Project GSI-PR1601a Waters

Client Project: Parcel 15 – POT (603.002.014)

Dear Ms. Hughes,

On November 30, 2016 Brooks Applied Labs (BAL) received seven (7) aqueous samples. The samples were logged-in for the analyses of dissolved arsenic (As), dissolved iron (Fe), dissolved manganese (Mn), total recoverable As, and As speciation according to the chain-of-custody (COC) forms. All samples for dissolved metals and speciation were field-filtered by the client prior to reception at BAL. All samples were received and stored according to BAL SOPs and EPA methodology.

*Dissolved Metals Quantitation by ICP-QQQ-MS*

All aqueous samples for dissolved metals were directly analyzed for As, Fe, and Mn by inductively coupled plasma triple quadrupole mass spectrometry (ICP-QQQ-MS). The ICP-QQQ-MS determinative method uses advanced interference removal techniques to ensure accuracy of the sample results. For more information, please visit the *Interference Reduction Technology* section on our website, [brooksapplied.com](http://brooksapplied.com).

*Total Recoverable Metals Quantitation by ICP-QQQ-MS*

All aqueous samples for total recoverable metals were digested on a hotblock apparatus with aliquots of with nitric and hydrochloric acids. The resulting digests were analyzed for As via ICP-QQQ-MS.

*Arsenic Speciation by IC-ICP-CRC-MS*

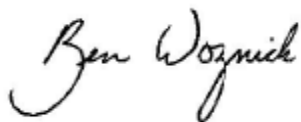
In accordance with the client's request, arsenic speciation was only performed on a given sample if the dissolved As concentration exceeded 36 µg/L. Since the dissolved As concentrations of all submitted samples were below 36 µg/L, no arsenic speciation analyses were performed.

Instances where the matrix spike/matrix spike duplicate (MS/MSD) sets were spiked at a concentration less than 25% of the native sample result, the recoveries were not reported (**NR**) and the MSD RPD is not calculated (**NC**), as they are not valid indicators of data quality. In such cases, the recoveries of the batch laboratory fortified blank and/or certified reference material demonstrate the accuracy of the analyses, whereas the RPD of the batch matrix duplicate demonstrates the method precision.

All results were *not* method blank corrected, as described in the calculations section of the relevant BAL SOPs, and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

All data was reported without qualification, aside from concentration qualifiers, and all other associated quality control results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information, please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.  
Sincerely,

A handwritten signature in black ink that reads "Ben Wozniak". The signature is written in a cursive style with a large, looping initial "B".

Ben Wozniak  
Project Manager  
[ben@brooksapplied.com](mailto:ben@brooksapplied.com)



## Report Information

### Laboratory Accreditation

BAL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BAL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksapplied.com/resources/certificates-permits/>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BAL</b>	Brooks Applied Labs	<b>MS</b>	matrix spike
<b>BLK</b>	method blank	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCB</b>	continuing calibration blank	<b>N/C</b>	not calculated
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>D</b>	dissolved fraction	<b>RPD</b>	relative percent difference
<b>DUP</b>	duplicate	<b>SCV</b>	secondary calibration verification
<b>IBL</b>	instrument blank	<b>SOP</b>	standard operating procedure
<b>ICV</b>	initial calibration verification	<b>SRM</b>	standard reference material
<b>MDL</b>	method detection limit	<b>T</b>	total fraction
<b>MRL</b>	method reporting limit	<b>TR</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>J</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J-1</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Applied Labs, those found in the EPA SOW\_ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BAL.



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
WCTPW001A-10-E3	1649019-01	Water	Sample	11/28/2016	11/30/2016
WCTPW001A-10-E3	1649019-02	water	Sample	11/28/2016	11/30/2016
WCTPW001B-10-E3	1649019-03	Water	Sample	11/28/2016	11/30/2016
WCTPW001B-10-E3	1649019-04	water	Sample	11/28/2016	11/30/2016
WCTPW002A-10-E3	1649019-05	Water	Sample	11/28/2016	11/30/2016
WCTPW002A-10-E3	1649019-06	water	Sample	11/28/2016	11/30/2016
WCTPW002B-10-E3	1649019-07	Water	Sample	11/28/2016	11/30/2016
WCTPW002B-10-E3	1649019-08	water	Sample	11/28/2016	11/30/2016
WCTPW003A-10-E3	1649019-09	Water	Sample	11/28/2016	11/30/2016
WCTPW003A-10-E3	1649019-10	water	Sample	11/28/2016	11/30/2016
WCTPW003B-10-E3	1649019-11	Water	Sample	11/28/2016	11/30/2016
WCTPW003B-10-E3	1649019-12	water	Sample	11/28/2016	11/30/2016
WCTPW004A-10-E3	1649019-13	Water	Sample	11/28/2016	11/30/2016
WCTPW004A-10-E3	1649019-14	water	Sample	11/28/2016	11/30/2016

## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
As	Water	EPA 1638 Mod	12/12/2016	12/15/2016	B163021	1601439
As	Water	EPA 1638 Mod	12/01/2016	12/28/2016	B163077	1601495
Fe	Water	EPA 1638 Mod	12/01/2016	12/07/2016	B163077	1601393
Mn	Water	EPA 1638 Mod	12/01/2016	12/07/2016	B163077	1601393
Mn	Water	EPA 1638 Mod	12/01/2016	12/28/2016	B163077	1601495





## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTPW001A-10-E3</b>										
1649019-01	As	Water	TR	10.9		0.290	1.01	µg/L	B163021	1601439
1649019-02	As	water	D	8.95		0.177	1.01	µg/L	B163077	1601495
1649019-02	Fe	water	D	20000		7.07	21.5	µg/L	B163077	1601393
1649019-02	Mn	water	D	2500		4.24	12.7	µg/L	B163077	1601495
<b>WCTPW001B-10-E3</b>										
1649019-03	As	Water	TR	20.6		0.290	1.01	µg/L	B163021	1601439
1649019-04	As	water	D	15.8		0.177	1.01	µg/L	B163077	1601495
1649019-04	Fe	water	D	7420		7.07	21.5	µg/L	B163077	1601393
1649019-04	Mn	water	D	1680		0.530	1.59	µg/L	B163077	1601393
<b>WCTPW002A-10-E3</b>										
1649019-05	As	Water	TR	8.69		0.290	1.01	µg/L	B163021	1601439
1649019-06	As	water	D	2.30		0.177	1.01	µg/L	B163077	1601495
1649019-06	Fe	water	D	1110		7.07	21.5	µg/L	B163077	1601393
1649019-06	Mn	water	D	454		0.530	1.59	µg/L	B163077	1601393
<b>WCTPW002B-10-E3</b>										
1649019-07	As	Water	TR	5.33		0.290	1.01	µg/L	B163021	1601439
1649019-08	As	water	D	3.28		0.177	1.01	µg/L	B163077	1601495
1649019-08	Fe	water	D	12400		7.07	21.5	µg/L	B163077	1601393
1649019-08	Mn	water	D	525		0.530	1.59	µg/L	B163077	1601393
<b>WCTPW003A-10-E3</b>										
1649019-09	As	Water	TR	20.3		0.290	1.01	µg/L	B163021	1601439
1649019-10	As	water	D	18.7		0.177	1.01	µg/L	B163077	1601495
1649019-10	Fe	water	D	16000		7.07	21.5	µg/L	B163077	1601393
1649019-10	Mn	water	D	1110		0.530	1.59	µg/L	B163077	1601393
<b>WCTPW003B-10-E3</b>										
1649019-11	As	Water	TR	11.2		0.290	1.01	µg/L	B163021	1601439
1649019-12	As	water	D	8.98		0.177	1.01	µg/L	B163077	1601495
1649019-12	Fe	water	D	22800		7.07	21.5	µg/L	B163077	1601393
1649019-12	Mn	water	D	2980		4.24	12.7	µg/L	B163077	1601495

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTPW004A-10-E3</b>										
1649019-13	As	Water	TR	7.41		0.290	1.01	µg/L	B163021	1601439
1649019-14	As	water	D	5.72		0.177	1.01	µg/L	B163077	1601495
1649019-14	Fe	water	D	6970		7.07	21.5	µg/L	B163077	1601393
1649019-14	Mn	water	D	112		0.530	1.59	µg/L	B163077	1601393



## Accuracy & Precision Summary

**Batch:** B163021  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B163021-BS1	Laboratory Fortified Blank, (1634057) As		200.0	180.6	µg/L	90% 75-125	
B163021-BS2	Laboratory Fortified Blank, (1634057) As		200.0	169.1	µg/L	85% 75-125	
B163021-SRM1	Certified Reference Material, (1647033, TMDA 70.2 Reference Standard - Bottle1) As		42.30	39.32	µg/L	93% 75-125	
B163021-SRM2	Certified Reference Material, (1647033, TMDA 70.2 Reference Standard - Bottle1) As		42.30	38.04	µg/L	90% 75-125	
B163021-DUP4	Duplicate, (1649019-01) As	10.91		10.65	µg/L		2% 20
B163021-MS4	Matrix Spike, (1649019-01) As	10.91	202.0	187.2	µg/L	87% 75-125	
B163021-MSD4	Matrix Spike Duplicate, (1649019-01) As	10.91	202.0	207.7	µg/L	97% 75-125	10% 20



## Accuracy & Precision Summary

Batch: B163077  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B163077-SRM1	<b>Certified Reference Material, (NC00370, T191 as SRM)</b>						
	Fe		83.00	78.60	µg/L	95% 75-125	
	Mn		27.00	27.35	µg/L	101% 75-125	
B163077-SRM2	<b>Certified Reference Material, (1649067, NIST 1643f (batch SRM))</b>						
	Fe		93.44	88.00	µg/L	94% 75-125	
	Mn		37.14	32.75	µg/L	88% 75-125	
B163077-SRM3	<b>Certified Reference Material, (NC00370, T191 as SRM)</b>						
	As		4.080	4.188	µg/L	103% 75-125	
B163077-SRM4	<b>Certified Reference Material, (1649067, NIST 1643f (batch SRM))</b>						
	As		57.42	54.68	µg/L	95% 75-125	
B163077-DUP1	<b>Duplicate, (1649019-02)</b>						
	Fe	20020		20240	µg/L		1% 20
B163077-DUP2	<b>Duplicate, (1649019-02)</b>						
	Mn	2499		2384	µg/L		5% 20
B163077-DUP3	<b>Duplicate, (1649019-02)</b>						
	As	8.947		8.464	µg/L		6% 20
B163077-MS1	<b>Matrix Spike, (1649019-02)</b>						
	Fe	20020	2525	22470	µg/L	NR 75-125	
B163077-MS2	<b>Matrix Spike, (1649019-02)</b>						
	Mn	2499	2020	4449	µg/L	97% 75-125	
B163077-MS3	<b>Matrix Spike, (1649019-02)</b>						
	As	8.947	252.5	274.9	µg/L	105% 75-125	
B163077-MSD1	<b>Matrix Spike Duplicate, (1649019-02)</b>						
	Fe	20020	2525	23690	µg/L	NR 75-125	N/C 20

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Accuracy & Precision Summary

**Batch:** B163077  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B163077-MSD2	Matrix Spike Duplicate, (1649019-02) Mn	2499	2020	4504	µg/L	99% 75-125	1% 20
B163077-MSD3	Matrix Spike Duplicate, (1649019-02) As	8.947	252.5	272.9	µg/L	105% 75-125	0.7% 20

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Method Blanks & Reporting Limits

**Batch:** B163021  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units		
B163021-BLK1	0.019	µg/L		
B163021-BLK2	0.013	µg/L		
B163021-BLK3	0.019	µg/L		
B163021-BLK4	0.014	µg/L		
<b>Average:</b>	<b>0.016</b>		<b>Standard Deviation:</b>	<b>0.003</b>
<b>Limit:</b>	<b>0.080</b>		<b>Limit:</b>	<b>0.023</b>
			<b>MDL:</b>	<b>0.023</b>
			<b>MRL:</b>	<b>0.080</b>



## Method Blanks & Reporting Limits

**Batch:** B163077  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units		
B163077-BLK5	0.003	µg/L		
B163077-BLK6	0.002	µg/L		
B163077-BLK7	0.001	µg/L		
B163077-BLK8	0.002	µg/L		
<b>Average:</b>	<b>0.002</b>		<b>Standard Deviation:</b>	<b>0.001</b>
<b>Limit:</b>	<b>0.040</b>		<b>Limit:</b>	<b>0.007</b>
			<b>MDL:</b>	<b>0.007</b>
			<b>MRL:</b>	<b>0.040</b>

**Analyte:** Fe

Sample	Result	Units		
B163077-BLK1	0.42	µg/L		
B163077-BLK2	0.53	µg/L		
B163077-BLK3	0.79	µg/L		
B163077-BLK4	0.29	µg/L		
<b>Average:</b>	<b>0.51</b>		<b>Standard Deviation:</b>	<b>0.21</b>
<b>Limit:</b>	<b>0.85</b>		<b>Limit:</b>	<b>0.28</b>
			<b>MDL:</b>	<b>0.28</b>
			<b>MRL:</b>	<b>0.85</b>

**Analyte:** Mn

Sample	Result	Units		
B163077-BLK1	0.016	µg/L		
B163077-BLK2	0.016	µg/L		
B163077-BLK3	0.011	µg/L		
B163077-BLK4	0.008	µg/L		
<b>Average:</b>	<b>0.013</b>		<b>Standard Deviation:</b>	<b>0.004</b>
<b>Limit:</b>	<b>0.063</b>		<b>Limit:</b>	<b>0.021</b>
			<b>MDL:</b>	<b>0.021</b>
			<b>MRL:</b>	<b>0.063</b>



## Sample Containers

<b>Lab ID:</b> 1649019-01		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW001A-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1%HNO3 (BAL)	1644020	<2	Cooler

<b>Lab ID:</b> 1649019-02		<b>Report Matrix:</b> water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW001A-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1% HNO3 (BAL)	1644020	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	Not Provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	Not Provided		Cooler

<b>Lab ID:</b> 1649019-03		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW001B-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1%HNO3 (BAL)	1644020	<2	Cooler

<b>Lab ID:</b> 1649019-04		<b>Report Matrix:</b> water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW001B-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1% HNO3 (BAL)	1644020	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	Not Provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	Not Provided		Cooler

<b>Lab ID:</b> 1649019-05		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW002A-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1%HNO3 (BAL)	1644020	<2	Cooler



**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Sample Containers

<b>Lab ID:</b> 1649019-06		<b>Report Matrix:</b> water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW002A-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1% HNO3 (BAL)	1644020	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	Not Provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	Not Provided		Cooler

<b>Lab ID:</b> 1649019-07		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW002B-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1%HNO3 (BAL)	1644020	<2	Cooler

<b>Lab ID:</b> 1649019-08		<b>Report Matrix:</b> water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW002B-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1% HNO3 (BAL)	1644020	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	Not Provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	Not Provided		Cooler

<b>Lab ID:</b> 1649019-09		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW003A-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1%HNO3 (BAL)	1644020	<2	Cooler

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Sample Containers

<b>Lab ID:</b> 1649019-10		<b>Report Matrix:</b> water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW003A-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1% HNO3 (BAL)	1644020	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	Not Provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	Not Provided		Cooler

<b>Lab ID:</b> 1649019-11		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW003B-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1%HNO3 (BAL)	1644020	<2	Cooler

<b>Lab ID:</b> 1649019-12		<b>Report Matrix:</b> water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW003B-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1% HNO3 (BAL)	1644020	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	Not Provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	Not Provided		Cooler

<b>Lab ID:</b> 1649019-13		<b>Report Matrix:</b> Water				<b>Collected:</b> 11/28/2016	
<b>Sample:</b> WCTPW004A-10-E3		<b>Sample Type:</b> Sample				<b>Received:</b> 11/30/2016	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	16-0183	1%HNO3 (BAL)	1644020	<2	Cooler

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Sample Containers

**Lab ID:** 1649019-14

**Sample:** WCTPW004A-10-E3

**Report Matrix:** water

**Sample Type:** Sample

**Collected:** 11/28/2016

**Received:** 11/30/2016

**Comments:** Container B and C not on COC.

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	16-0183	1% HNO3 (BAL)	1644020	<2	Cooler
B	Vacutainer	10mL	16-0117	EDTA (PP)	Not Provided		Cooler
C	EXTRA_VOL	10mL	16-0117	EDTA (PP)	Not Provided		Cooler

**Comments:** not on COC

## Shipping Containers

### Cooler

**Received:** November 30, 2016 11:30

**Tracking No:** None via Courier

**Coolant Type:** Blue Ice

**Temperature:** 1.5 °C

**Description:** Cooler

**Damaged in transit?** No

**Returned to client?** No

**Comments:** IR #7

**Custody seals present?** No

**Custody seals intact?** No

**COC present?** Yes



55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

# Chain of Custody Record

Field Sampler(s):  
*ETS*

**Client Contact**  
Project Name: Parcel 15 - POT  
Project # or PO #: 603.002.014  
Project Manager: Erin Hughes  
Phone #: 971-200-8528  
Report to email: echughes@gsws.com

**For Lab Use Only:**  
SDG: \_\_\_\_\_  
Custody Seals intact?  
Hand delivered?  
Cooler Temp: \_\_\_\_\_ °C  
Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Laboratory**

**Lab PM**

**Analysis Turnaround Time:**  
Standard 21 day TAT on Most Analyses  
Rush 5 day on Dissolved Metals in Porewater

**TestAmerica**

**Brooks**

**Analysis Requested**

Brooks  
Ben Wozniak  
206-753-6158

**Sample Identification**

Sample Date  
Sample Time  
Field Conductivity (uS/cm)  
Sample Type (C=Comp, G=Grab)  
Matrix  
Total # of Cont.

SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)**	Arsenic Speciation - As (III/As(V)*)
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TestAmerica  
Rob Greer  
253-922-5047

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)**	Arsenic Speciation - As (III/As(V)*)	Sample Specific Notes
WCTPW001A-10-E3	11/28/16	2015	12574	G	U	12	X	X	X	X	X	X	X	X	X				X	X	X	
WCTPW001B-10-E3	11/28	2030	11584			12	X	X	X	X	X	X	X	X	X	X	X		X	X	X	
WCTPW002A-10-E3	11/28	2100	21881			12	X	X	X	X	X	X	X	X	X				X	X	X	
WCTPW002B-10-E3	11/28	2130	28955			12	X	X	X	X	X	X	X	X	X				X	X	X	
WCTPW003A-10-E3	11/28	2200	25965			12	X	X	X	X	X	X	X	X	X				X	X	X	
WCTPW003B-10-E3	11/28	2230	8419			12	X	X	X	X	X	X	X	X	X				X	X	X	
WCTPW004A-10-E3	11/28	2300	1694			7	X	X	X								X	X	X			

**Possible Hazard Identification:**  
Are samples hazardous?  No  
If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
select hazard(s):  
Relinquished by: *[Signature]* Date/Time: 11/29/16 1200  
Relinquished by: *[Signature]* Date/Time: 11/30/16 1127  
Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
Received by: *[Signature]* Date/Time: 11/29/16 1200  
Received by: *[Signature]* Date/Time: \_\_\_\_\_  
Received in Laboratory by: *[Signature]* Date/Time: 11/30/16 11:30

**Special Instructions/QC Requirements**  
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
Please contact Cindy Ryals at 971-200-8531 with any questions.

*\* As speciation to be run if concentration > 30ug/L*

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-64136-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Erin Carroll Hughes



Authorized for release by:  
12/7/2016 3:24:27 PM

Robert Greer, Project Manager II  
(253)922-2310  
[robert.greer@testamericainc.com](mailto:robert.greer@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Job ID: 580-64136-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-64136-1

#### Receipt

The samples were received on 11/15/2016 4:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 10.9° C, 11.2° C, 11.6° C and 12.0° C.

#### Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: PWMB-E3 (580-64136-1), WCTSW001B-E3 (580-64136-2), WCTSW002B-E3 (580-64136-3), WCTSW003B-E3 (580-64136-4), WCTSW004B-E3 (580-64136-5), OF#2-E3 (580-64136-6), OF#3-E3 (580-64136-7), BWSW001-E3 (580-64136-8), USSW001-E3 (580-64136-9), MW003-E3 (580-64136-10) and MW006R-E3 (580-64136-11). The samples were received at the lab at 12.0°, 11.6°, 11.2° and 10.9°C. The remaining samples in the login were received on ice on the day of sampling.

The Field Sampler was not listed on the Chain of Custody.

#### GC/MS Semi VOA

Method(s) 8270D SIM: The method blank for preparation batch 580-232834 and analytical batch 580-232854 contained Pentachlorophenol above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

Method(s) 6010C: The method blank for preparation batch 580-232834 and analytical batch 580-232854 contained Calcium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0: Due to the high concentration of chloride, the following samples required dilutions: WCTSW001B-E3 (580-64136-2), WCTSW002B-E3 (580-64136-3), WCTSW003B-E3 (580-64136-4) and BWSW001-E3 (580-64136-8)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.
F1	MS and/or MSD Recovery is outside acceptance limits.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♠	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: PWMB-E3**

**Lab Sample ID: 580-64136-1**

**Date Collected: 11/14/16 16:15**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.043	J B	0.084	0.014	ug/L		11/18/16 16:43	11/19/16 17:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	84		44 - 125				11/18/16 16:43	11/19/16 17:25	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.22	J	1.0	0.19	mg/L			11/18/16 09:44	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	0.33	J	1.0	0.19	mg/L			11/29/16 11:19	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: WCTSW001B-E3**

**Lab Sample ID: 580-64136-2**

**Date Collected: 11/14/16 20:45**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

### Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	39	B	1.1	0.023	mg/L		11/28/16 14:35	11/29/16 11:13	1
Magnesium	73		1.1	0.13	mg/L		11/28/16 14:35	11/29/16 11:13	1
Potassium	25		3.3	0.15	mg/L		11/28/16 14:35	11/29/16 11:13	1
Sodium	570		20	5.5	mg/L		11/28/16 14:35	11/29/16 12:31	10

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.1		5.0	1.4	ug/L		11/28/16 15:25	11/29/16 14:51	5

### Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.5	J	5.0	1.4	ug/L		11/28/16 14:35	12/07/16 11:15	5
Iron	910		200	29	ug/L		11/28/16 14:35	12/07/16 11:15	5
Manganese	110		10	1.8	ug/L		11/28/16 14:35	12/07/16 11:15	5

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	6.0		1.0	0.19	mg/L			11/18/16 09:44	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	210		2.0	2.0	mg/L			11/16/16 16:43	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1.8		0.20	0.030	mg/L			11/16/16 13:35	1
Nitrite as N	ND		0.40	0.080	mg/L			11/16/16 13:35	1
Chloride	900		45	2.0	mg/L			11/17/16 09:38	50
Nitrate as N	0.91		0.20	0.020	mg/L			11/16/16 13:35	1
Bromide	3.0		0.50	0.060	mg/L			11/16/16 13:35	1
Sulfate	140		60	13	mg/L			11/17/16 09:38	50
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	6.4		1.0	0.19	mg/L			11/29/16 11:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/16/16 11:21	1
Alkalinity	130		5.0	5.0	mg/L			11/17/16 14:57	1
Bicarbonate Alkalinity as CaCO3	130		5.0	5.0	mg/L			11/17/16 14:57	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1

TestAmerica Seattle

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: WCTSW002B-E3**

**Lab Sample ID: 580-64136-3**

**Date Collected: 11/14/16 21:30**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	30	B	1.1	0.023	mg/L		11/28/16 14:35	11/29/16 11:17	1
Magnesium	45		1.1	0.13	mg/L		11/28/16 14:35	11/29/16 11:17	1
Potassium	16		3.3	0.15	mg/L		11/28/16 14:35	11/29/16 11:17	1
Sodium	330		20	5.5	mg/L		11/28/16 14:35	11/29/16 12:34	10

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	5.8		1.0	0.19	mg/L			11/18/16 09:44	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	92		2.0	2.0	mg/L			11/16/16 16:43	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			11/16/16 13:50	1
Nitrite as N	ND		0.40	0.080	mg/L			11/16/16 13:50	1
Chloride	580		9.0	0.40	mg/L			11/17/16 09:53	10
Nitrate as N	0.94		0.20	0.020	mg/L			11/16/16 13:50	1
Bromide	1.7		0.50	0.060	mg/L			11/16/16 13:50	1
Sulfate	87		1.2	0.26	mg/L			11/16/16 13:50	1
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	6.3		1.0	0.19	mg/L			11/29/16 11:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/16/16 11:21	1
Alkalinity	120		5.0	5.0	mg/L			11/17/16 14:57	1
Bicarbonate Alkalinity as CaCO3	120		5.0	5.0	mg/L			11/17/16 14:57	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: WCTSW003B-E3**

**Lab Sample ID: 580-64136-4**

**Date Collected: 11/14/16 22:10**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	43	B	1.1	0.023	mg/L		11/28/16 14:35	11/29/16 11:20	1
Magnesium	88		1.1	0.13	mg/L		11/28/16 14:35	11/29/16 11:20	1
Potassium	31		3.3	0.15	mg/L		11/28/16 14:35	11/29/16 11:20	1
Sodium	720		20	5.5	mg/L		11/28/16 14:35	11/29/16 12:37	10

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	5.3		1.0	0.19	mg/L			11/18/16 09:44	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	30		2.0	2.0	mg/L			11/16/16 16:43	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	3.5		0.20	0.030	mg/L			11/16/16 14:05	1
Nitrite as N	ND		0.40	0.080	mg/L			11/16/16 14:05	1
Chloride	1200		45	2.0	mg/L			11/17/16 10:08	50
Nitrate as N	0.89		0.20	0.020	mg/L			11/16/16 14:05	1
Bromide	3.9		0.50	0.060	mg/L			11/16/16 14:05	1
Sulfate	170		60	13	mg/L			11/17/16 10:08	50
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	5.7		1.0	0.19	mg/L			11/29/16 11:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/16/16 11:21	1
Alkalinity	130		5.0	5.0	mg/L			11/17/16 14:57	1
Bicarbonate Alkalinity as CaCO3	130		5.0	5.0	mg/L			11/17/16 14:57	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: WCTSW004B-E3**

**Lab Sample ID: 580-64136-5**

**Date Collected: 11/14/16 23:00**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.059	J B	0.085	0.014	ug/L		11/18/16 16:43	11/19/16 17:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	80		44 - 125				11/18/16 16:43	11/19/16 17:47	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	5.6		1.0	0.19	mg/L			11/18/16 09:44	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	41		2.0	2.0	mg/L			11/16/16 16:43	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.0		1.0	0.19	mg/L			11/29/16 11:19	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: OF#2-E3**

**Lab Sample ID: 580-64136-6**

**Date Collected: 11/14/16 20:20**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>5.2</b>		1.0	0.19	mg/L			11/18/16 09:44	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>34</b>		4.0	4.0	mg/L			11/16/16 16:43	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Dissolved Organic Carbon</b>	<b>4.9</b>		1.0	0.19	mg/L			11/29/16 11:19	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: OF#3-E3**

**Lab Sample ID: 580-64136-7**

**Date Collected: 11/14/16 22:30**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>3.5</b>		1.0	0.19	mg/L			11/18/16 09:44	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>14</b>		2.0	2.0	mg/L			11/16/16 16:43	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Dissolved Organic Carbon</b>	<b>3.5</b>		1.0	0.19	mg/L			11/29/16 11:19	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: BWSW001-E3**

**Lab Sample ID: 580-64136-8**

**Date Collected: 11/15/16 16:15**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	270	B	1.1	0.023	mg/L		11/28/16 14:35	11/29/16 11:24	1
Magnesium	910		110	13	mg/L		11/28/16 14:35	11/29/16 12:41	100
Potassium	290		3.3	0.15	mg/L		11/28/16 14:35	11/29/16 11:24	1
Sodium	8200		200	55	mg/L		11/28/16 14:35	11/29/16 12:41	100

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.4		1.0	0.19	mg/L			11/18/16 09:44	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	4.8		2.0	2.0	mg/L			11/16/16 16:43	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	37		1.0	0.15	mg/L			11/17/16 09:07	5
Nitrite as N	ND		0.40	0.080	mg/L			11/16/16 14:21	1
Chloride	18000		900	40	mg/L			11/17/16 09:22	1000
Nitrate as N	6.1		0.20	0.020	mg/L			11/16/16 14:21	1
Bromide	ND		0.50	0.060	mg/L			11/16/16 14:21	1
Sulfate	2700		1200	260	mg/L			11/17/16 09:22	1000
Sulfide	ND	F1	0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	1.6		1.0	0.19	mg/L			11/29/16 11:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.14		0.10	0.10	mg/L			11/16/16 11:21	1
Alkalinity	130		5.0	5.0	mg/L			11/17/16 14:57	1
Bicarbonate Alkalinity as CaCO3	110		5.0	5.0	mg/L			11/17/16 14:57	1
Carbonate Alkalinity as CaCO3	12		5.0	5.0	mg/L			11/17/16 14:57	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: USSW001-E3**

**Lab Sample ID: 580-64136-9**

**Date Collected: 11/15/16 14:45**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

### Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	16	B	1.1	0.023	mg/L		11/28/16 14:35	11/29/16 11:27	1
Magnesium	7.3		1.1	0.13	mg/L		11/28/16 14:35	11/29/16 11:27	1
Potassium	4.7		3.3	0.15	mg/L		11/28/16 14:35	11/29/16 11:27	1
Sodium	7.8		2.0	0.55	mg/L		11/28/16 14:35	11/29/16 12:44	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	7.5		1.0	0.19	mg/L			11/18/16 09:44	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	6.6		2.0	2.0	mg/L			11/16/16 16:43	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			11/16/16 13:19	1
Nitrite as N	ND		0.40	0.080	mg/L			11/16/16 13:19	1
Chloride	5.6		0.90	0.040	mg/L			11/16/16 13:19	1
Nitrate as N	0.75		0.20	0.020	mg/L			11/16/16 13:19	1
Bromide	ND		0.50	0.060	mg/L			11/16/16 13:19	1
Sulfate	7.2		1.2	0.26	mg/L			11/16/16 13:19	1
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	7.6		1.0	0.19	mg/L			11/29/16 11:29	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/16/16 11:21	1
Alkalinity	88		5.0	5.0	mg/L			11/17/16 14:57	1
Bicarbonate Alkalinity as CaCO3	88		5.0	5.0	mg/L			11/17/16 14:57	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: MW003-E3**

**Lab Sample ID: 580-64136-10**

**Date Collected: 11/15/16 15:00**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.074	J B	0.088	0.015	ug/L		11/18/16 16:43	11/19/16 18:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	67		44 - 125				11/18/16 16:43	11/19/16 18:10	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	37		4.0	0.76	mg/L			11/22/16 11:47	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	110		4.0	4.0	mg/L			11/16/16 16:43	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	41		4.0	0.76	mg/L			11/29/16 11:29	4

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: MW006R-E3**

**Lab Sample ID: 580-64136-11**

**Date Collected: 11/15/16 15:50**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	1.1	B	0.090	0.015	ug/L		11/18/16 16:43	11/19/16 18:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	82		44 - 125				11/18/16 16:43	11/19/16 18:32	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	21		4.0	0.76	mg/L			11/22/16 11:47	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	9.4		2.0	2.0	mg/L			11/16/16 16:43	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	22		4.0	0.76	mg/L			11/29/16 11:29	4

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-232834/1-A**  
**Matrix: Water**  
**Analysis Batch: 232854**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 232834**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.0454	J	0.080	0.014	ug/L		11/18/16 16:43	11/19/16 15:12	1
Surrogate	%Recovery	MB Qualifier	Limits						
2,4,6-Tribromophenol	75		44 - 125						
							Prepared	Analyzed	Dil Fac
							11/18/16 16:43	11/19/16 15:12	1

**Lab Sample ID: LCS 580-232834/2-A**  
**Matrix: Water**  
**Analysis Batch: 232854**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 232834**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Pentachlorophenol	8.00	7.05		ug/L		88	20 - 134		
Surrogate	%Recovery	LCS Qualifier	Limits						
2,4,6-Tribromophenol	79		44 - 125						

**Lab Sample ID: LCSD 580-232834/3-A**  
**Matrix: Water**  
**Analysis Batch: 232854**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 232834**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	8.00	7.43		ug/L		93	20 - 134	5	35
Surrogate	%Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	86		44 - 125						

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-233384/21-A**  
**Matrix: Water**  
**Analysis Batch: 233520**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233384**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.0257	J	1.1	0.023	mg/L		11/28/16 14:35	11/29/16 10:38	1
Magnesium	ND		1.1	0.13	mg/L		11/28/16 14:35	11/29/16 10:38	1
Potassium	ND		3.3	0.15	mg/L		11/28/16 14:35	11/29/16 10:38	1
Sodium	ND		2.0	0.55	mg/L		11/28/16 14:35	11/29/16 10:38	1

**Lab Sample ID: LCS 580-233384/22-A**  
**Matrix: Water**  
**Analysis Batch: 233520**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233384**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Calcium	20.0	20.7		mg/L		103	80 - 120		
Magnesium	20.0	20.5		mg/L		103	80 - 120		
Potassium	20.0	21.1		mg/L		105	80 - 120		
Sodium	20.0	21.2		mg/L		106	80 - 120		

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

## Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 580-233384/23-A

Matrix: Water

Analysis Batch: 233520

Client Sample ID: Lab Control Sample Dup

Prep Type: Total Recoverable

Prep Batch: 233384

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Calcium	20.0	21.0		mg/L		105	80 - 120	2	20
Magnesium	20.0	21.0		mg/L		105	80 - 120	2	20
Potassium	20.0	21.6		mg/L		108	80 - 120	3	20
Sodium	20.0	21.7		mg/L		108	80 - 120	2	20

## Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-233384/21-A

Matrix: Water

Analysis Batch: 233541

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 233384

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.27	ug/L		11/28/16 14:35	11/29/16 16:08	1
Iron	ND		40	5.8	ug/L		11/28/16 14:35	11/29/16 16:08	1
Manganese	ND		2.0	0.35	ug/L		11/28/16 14:35	11/29/16 16:08	1

Lab Sample ID: LCS 580-233384/22-A

Matrix: Water

Analysis Batch: 233541

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 233384

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	4000	4540		ug/L		113	80 - 120
Iron	22000	26000		ug/L		118	80 - 120
Manganese	1000	1150		ug/L		115	80 - 120

Lab Sample ID: LCSD 580-233384/23-A

Matrix: Water

Analysis Batch: 233541

Client Sample ID: Lab Control Sample Dup

Prep Type: Total Recoverable

Prep Batch: 233384

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	4000	4180		ug/L		105	80 - 120	8	20
Iron	22000	24200		ug/L		110	80 - 120	7	20
Manganese	1000	1040		ug/L		104	80 - 120	9	20

Lab Sample ID: MB 580-233389/21-A

Matrix: Water

Analysis Batch: 233541

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 233389

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	1.4	ug/L		11/28/16 15:25	11/29/16 13:30	5

Lab Sample ID: LCS 580-233389/22-A

Matrix: Water

Analysis Batch: 233541

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 233389

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	4000	4310		ug/L		108	80 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID:** LCSD 580-233389/23-A  
**Matrix:** Water  
**Analysis Batch:** 233541

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total Recoverable  
**Prep Batch:** 233389

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4000	4130		ug/L		103	80 - 120	4	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID:** MB 580-232654/3  
**Matrix:** Water  
**Analysis Batch:** 232654

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			11/16/16 12:33	1
Chloride	ND		0.90	0.040	mg/L			11/16/16 12:33	1
Bromide	ND		0.50	0.060	mg/L			11/16/16 12:33	1
Sulfate	ND		1.2	0.26	mg/L			11/16/16 12:33	1

**Lab Sample ID:** LCS 580-232654/4  
**Matrix:** Water  
**Analysis Batch:** 232654

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	4.85		mg/L		97	90 - 110
Chloride	50.0	49.3		mg/L		99	90 - 110
Bromide	10.0	9.97		mg/L		100	90 - 110
Sulfate	50.0	48.7		mg/L		97	90 - 110

**Lab Sample ID:** LCSD 580-232654/5  
**Matrix:** Water  
**Analysis Batch:** 232654

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	4.86		mg/L		97	90 - 110	0	15
Chloride	50.0	49.3		mg/L		99	90 - 110	0	15
Bromide	10.0	9.94		mg/L		99	90 - 110	0	15
Sulfate	50.0	48.7		mg/L		97	90 - 110	0	15

**Lab Sample ID:** MB 580-232657/3  
**Matrix:** Water  
**Analysis Batch:** 232657

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.080	mg/L			11/16/16 12:33	1
Nitrate as N	ND		0.20	0.020	mg/L			11/16/16 12:33	1

**Lab Sample ID:** LCS 580-232657/4  
**Matrix:** Water  
**Analysis Batch:** 232657

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	5.00	4.95		mg/L		99	90 - 110
Nitrate as N	5.00	4.88		mg/L		98	90 - 110

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Lab Sample ID: LCSD 580-232657/5**  
**Matrix: Water**  
**Analysis Batch: 232657**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	5.00	4.95		mg/L		99	90 - 110	0	15
Nitrate as N	5.00	4.87		mg/L		97	90 - 110	0	15

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID: MB 580-232547/1**  
**Matrix: Water**  
**Analysis Batch: 232547**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10 mg/L			11/16/16 11:21	1

**Lab Sample ID: LCS 580-232547/2**  
**Matrix: Water**  
**Analysis Batch: 232547**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.99		mg/L		100	90 - 110

**Lab Sample ID: 580-64136-2 MS**  
**Matrix: Water**  
**Analysis Batch: 232547**

**Client Sample ID: WCTSW001B-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	ND		2.00	1.97		mg/L		98	80 - 120

**Lab Sample ID: 580-64136-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 232547**

**Client Sample ID: WCTSW001B-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	ND		2.00	2.00		mg/L		100	80 - 120	2	20

**Lab Sample ID: 580-64136-2 DU**  
**Matrix: Water**  
**Analysis Batch: 232547**

**Client Sample ID: WCTSW001B-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
ortho-Phosphate	ND		ND		mg/L		NC	20

## Method: SM 2320B - Alkalinity

**Lab Sample ID: LCS 580-232701/2**  
**Matrix: Water**  
**Analysis Batch: 232701**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	95.4		mg/L		95	85 - 115

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 580-232609/1**  
**Matrix: Water**  
**Analysis Batch: 232609**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			11/16/16 16:43	1

**Lab Sample ID: LCS 580-232609/2**  
**Matrix: Water**  
**Analysis Batch: 232609**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	25.6		mg/L		93	70.6 - 120

**Lab Sample ID: 580-64136-8 DU**  
**Matrix: Water**  
**Analysis Batch: 232609**

**Client Sample ID: BWSW001-E3**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	4.8		6.40	F5	mg/L		29	20

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID: MB 280-352469/41**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1

**Lab Sample ID: MB 280-352469/5**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1

**Lab Sample ID: LCS 280-352469/3**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.576	0.485		mg/L		84	80 - 119

**Lab Sample ID: LCS 280-352469/39**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.576	0.490		mg/L		85	80 - 119

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

## Method: SM 4500 S2 D - Sulfide, Total (Continued)

**Lab Sample ID: LCSD 280-352469/4**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.576	0.473		mg/L		82	80 - 119	3	10

**Lab Sample ID: LCSD 280-352469/40**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.576	0.497		mg/L		86	80 - 119	2	10

**Lab Sample ID: 580-64136-8 MS**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: BWSW001-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND	F1	0.576	0.327	F1	mg/L		57	80 - 119

**Lab Sample ID: 580-64136-8 MSD**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: BWSW001-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND	F1	0.576	0.347	F1	mg/L		60	80 - 119	6	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-232900/3**  
**Matrix: Water**  
**Analysis Batch: 232900**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			11/18/16 09:44	1

**Lab Sample ID: LCS 580-232900/4**  
**Matrix: Water**  
**Analysis Batch: 232900**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	8.53		mg/L		85	85 - 115

**Lab Sample ID: MB 580-233159/3**  
**Matrix: Water**  
**Analysis Batch: 233159**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			11/22/16 11:47	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID:** LCS 580-233159/4  
**Matrix:** Water  
**Analysis Batch:** 233159

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.77		mg/L		98	85 - 115

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID:** MB 580-233561/3  
**Matrix:** Water  
**Analysis Batch:** 233561

**Client Sample ID:** Method Blank  
**Prep Type:** Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			11/29/16 11:19	1

**Lab Sample ID:** LCS 580-233561/4  
**Matrix:** Water  
**Analysis Batch:** 233561

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.83		mg/L		98	85 - 115

**Lab Sample ID:** 580-64136-1 MS  
**Matrix:** Water  
**Analysis Batch:** 233561

**Client Sample ID:** PWMB-E3  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	0.33	J	10.0	9.87		mg/L		95	85 - 115

**Lab Sample ID:** 580-64136-1 MSD  
**Matrix:** Water  
**Analysis Batch:** 233561

**Client Sample ID:** PWMB-E3  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Dissolved Organic Carbon	0.33	J	10.0	10.2		mg/L		99	85 - 115	4	20

**Lab Sample ID:** 580-64136-1 DU  
**Matrix:** Water  
**Analysis Batch:** 233561

**Client Sample ID:** PWMB-E3  
**Prep Type:** Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Dissolved Organic Carbon	0.33	J	10.0	0.263	J F5	mg/L				21	20

**Lab Sample ID:** MB 580-233562/3  
**Matrix:** Water  
**Analysis Batch:** 233562

**Client Sample ID:** Method Blank  
**Prep Type:** Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			11/29/16 11:29	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

**Lab Sample ID: LCS 580-233562/4**  
**Matrix: Water**  
**Analysis Batch: 233562**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.42		mg/L		94	85 - 115

**Lab Sample ID: 580-64136-11 MS**  
**Matrix: Water**  
**Analysis Batch: 233562**

**Client Sample ID: MW006R-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	22		40.0	61.0		mg/L		98	85 - 115

**Lab Sample ID: 580-64136-11 MSD**  
**Matrix: Water**  
**Analysis Batch: 233562**

**Client Sample ID: MW006R-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	22		40.0	58.9		mg/L		93	85 - 115	3	20

**Lab Sample ID: 580-64136-11 DU**  
**Matrix: Water**  
**Analysis Batch: 233562**

**Client Sample ID: MW006R-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	22		22.1		mg/L		1	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: PWMB-E3**

**Date Collected: 11/14/16 16:15**

**Date Received: 11/15/16 16:45**

**Lab Sample ID: 580-64136-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			232834	11/18/16 16:43	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	232854	11/19/16 17:25	W1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		1	233561	11/29/16 11:19	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	232900	11/18/16 09:44	Z1T	TAL SEA

**Client Sample ID: WCTSW001B-E3**

**Date Collected: 11/14/16 20:45**

**Date Received: 11/15/16 16:45**

**Lab Sample ID: 580-64136-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			233384	11/28/16 14:35	MKN	TAL SEA
Dissolved	Analysis	6010C		1	233520	11/29/16 11:13	HJM	TAL SEA
Dissolved	Prep	3005A			233384	11/28/16 14:35	MKN	TAL SEA
Dissolved	Analysis	6010C		10	233520	11/29/16 12:31	HJM	TAL SEA
Dissolved	Prep	3005A			233384	11/28/16 14:35	MKN	TAL SEA
Dissolved	Analysis	6020A		5	234022	12/07/16 11:15	FCW	TAL SEA
Total Recoverable	Prep	3005A			233389	11/28/16 15:25	MKN	TAL SEA
Total Recoverable	Analysis	6020A		5	233541	11/29/16 14:51	FCW	TAL SEA
Dissolved	Analysis	300.0		1	232654	11/16/16 13:35	Z1T	TAL SEA
Dissolved	Analysis	300.0		1	232657	11/16/16 13:35	Z1T	TAL SEA
Dissolved	Analysis	300.0		50	232654	11/17/16 09:38	Z1T	TAL SEA
Dissolved	Analysis	365.1		1	232547	11/16/16 11:21	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	232701	11/17/16 14:57	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	232609	11/16/16 16:43	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		1	233561	11/29/16 11:19	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	232900	11/18/16 09:44	Z1T	TAL SEA

**Client Sample ID: WCTSW002B-E3**

**Date Collected: 11/14/16 21:30**

**Date Received: 11/15/16 16:45**

**Lab Sample ID: 580-64136-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			233384	11/28/16 14:35	MKN	TAL SEA
Dissolved	Analysis	6010C		1	233520	11/29/16 11:17	HJM	TAL SEA
Dissolved	Prep	3005A			233384	11/28/16 14:35	MKN	TAL SEA
Dissolved	Analysis	6010C		10	233520	11/29/16 12:34	HJM	TAL SEA
Dissolved	Analysis	300.0		1	232654	11/16/16 13:50	Z1T	TAL SEA
Dissolved	Analysis	300.0		1	232657	11/16/16 13:50	Z1T	TAL SEA
Dissolved	Analysis	300.0		10	232654	11/17/16 09:53	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: WCTSW002B-E3**

**Lab Sample ID: 580-64136-3**

**Date Collected: 11/14/16 21:30**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	365.1		1	232547	11/16/16 11:21	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	232701	11/17/16 14:57	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	232609	11/16/16 16:43	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		1	233561	11/29/16 11:19	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	232900	11/18/16 09:44	Z1T	TAL SEA

**Client Sample ID: WCTSW003B-E3**

**Lab Sample ID: 580-64136-4**

**Date Collected: 11/14/16 22:10**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			233384	11/28/16 14:35	MKN	TAL SEA
Dissolved	Analysis	6010C		1	233520	11/29/16 11:20	HJM	TAL SEA
Dissolved	Prep	3005A			233384	11/28/16 14:35	MKN	TAL SEA
Dissolved	Analysis	6010C		10	233520	11/29/16 12:37	HJM	TAL SEA
Dissolved	Analysis	300.0		1	232654	11/16/16 14:05	Z1T	TAL SEA
Dissolved	Analysis	300.0		1	232657	11/16/16 14:05	Z1T	TAL SEA
Dissolved	Analysis	300.0		50	232654	11/17/16 10:08	Z1T	TAL SEA
Dissolved	Analysis	365.1		1	232547	11/16/16 11:21	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	232701	11/17/16 14:57	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	232609	11/16/16 16:43	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		1	233561	11/29/16 11:19	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	232900	11/18/16 09:44	Z1T	TAL SEA

**Client Sample ID: WCTSW004B-E3**

**Lab Sample ID: 580-64136-5**

**Date Collected: 11/14/16 23:00**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			232834	11/18/16 16:43	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	232854	11/19/16 17:47	W1T	TAL SEA
Total/NA	Analysis	SM 2540D		1	232609	11/16/16 16:43	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		1	233561	11/29/16 11:19	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	232900	11/18/16 09:44	Z1T	TAL SEA

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: OF#2-E3**

**Date Collected: 11/14/16 20:20**

**Date Received: 11/15/16 16:45**

**Lab Sample ID: 580-64136-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	232609	11/16/16 16:43	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		1	233561	11/29/16 11:19	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	232900	11/18/16 09:44	Z1T	TAL SEA

**Client Sample ID: OF#3-E3**

**Date Collected: 11/14/16 22:30**

**Date Received: 11/15/16 16:45**

**Lab Sample ID: 580-64136-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	232609	11/16/16 16:43	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		1	233561	11/29/16 11:19	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	232900	11/18/16 09:44	Z1T	TAL SEA

**Client Sample ID: BWSW001-E3**

**Date Collected: 11/15/16 16:15**

**Date Received: 11/15/16 16:45**

**Lab Sample ID: 580-64136-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			233384	11/28/16 14:35	MKN	TAL SEA
Dissolved	Analysis	6010C		1	233520	11/29/16 11:24	HJM	TAL SEA
Dissolved	Prep	3005A			233384	11/28/16 14:35	MKN	TAL SEA
Dissolved	Analysis	6010C		100	233520	11/29/16 12:41	HJM	TAL SEA
Dissolved	Analysis	300.0		1	232654	11/16/16 14:21	Z1T	TAL SEA
Dissolved	Analysis	300.0		1	232657	11/16/16 14:21	Z1T	TAL SEA
Dissolved	Analysis	300.0		5	232654	11/17/16 09:07	Z1T	TAL SEA
Dissolved	Analysis	300.0		1000	232654	11/17/16 09:22	Z1T	TAL SEA
Dissolved	Analysis	365.1		1	232547	11/16/16 11:21	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	232701	11/17/16 14:57	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	232609	11/16/16 16:43	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		1	233561	11/29/16 11:19	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	232900	11/18/16 09:44	Z1T	TAL SEA

**Client Sample ID: USSW001-E3**

**Date Collected: 11/15/16 14:45**

**Date Received: 11/15/16 16:45**

**Lab Sample ID: 580-64136-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			233384	11/28/16 14:35	MKN	TAL SEA
Dissolved	Analysis	6010C		1	233520	11/29/16 11:27	HJM	TAL SEA
Dissolved	Prep	3005A			233384	11/28/16 14:35	MKN	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

**Client Sample ID: USSW001-E3**

**Lab Sample ID: 580-64136-9**

**Date Collected: 11/15/16 14:45**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6010C		1	233520	11/29/16 12:44	HJM	TAL SEA
Dissolved	Analysis	300.0		1	232654	11/16/16 13:19	Z1T	TAL SEA
Dissolved	Analysis	300.0		1	232657	11/16/16 13:19	Z1T	TAL SEA
Dissolved	Analysis	365.1		1	232547	11/16/16 11:21	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	232701	11/17/16 14:57	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	232609	11/16/16 16:43	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		1	233562	11/29/16 11:29	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	232900	11/18/16 09:44	Z1T	TAL SEA

**Client Sample ID: MW003-E3**

**Lab Sample ID: 580-64136-10**

**Date Collected: 11/15/16 15:00**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			232834	11/18/16 16:43	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	232854	11/19/16 18:10	W1T	TAL SEA
Total/NA	Analysis	SM 2540D		1	232609	11/16/16 16:43	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		4	233562	11/29/16 11:29	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	233159	11/22/16 11:47	Z1T	TAL SEA

**Client Sample ID: MW006R-E3**

**Lab Sample ID: 580-64136-11**

**Date Collected: 11/15/16 15:50**

**Matrix: Water**

**Date Received: 11/15/16 16:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			232834	11/18/16 16:43	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	232854	11/19/16 18:32	W1T	TAL SEA
Total/NA	Analysis	SM 2540D		1	232609	11/16/16 16:43	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		4	233562	11/29/16 11:29	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	233159	11/22/16 11:47	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64136-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6020A	3005A	Water	Iron
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 5310B		Water	Dissolved Organic Carbon

## Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-02-17



# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

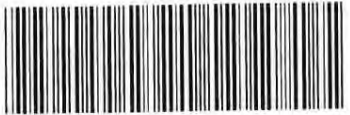
TestAmerica Job ID: 580-64136-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-64136-1	PWMB-E3	Water	11/14/16 16:15	11/15/16 16:45
580-64136-2	WCTSW001B-E3	Water	11/14/16 20:45	11/15/16 16:45
580-64136-3	WCTSW002B-E3	Water	11/14/16 21:30	11/15/16 16:45
580-64136-4	WCTSW003B-E3	Water	11/14/16 22:10	11/15/16 16:45
580-64136-5	WCTSW004B-E3	Water	11/14/16 23:00	11/15/16 16:45
580-64136-6	OF#2-E3	Water	11/14/16 20:20	11/15/16 16:45
580-64136-7	OF#3-E3	Water	11/14/16 22:30	11/15/16 16:45
580-64136-8	BWSW001-E3	Water	11/15/16 16:15	11/15/16 16:45
580-64136-9	USSW001-E3	Water	11/15/16 14:45	11/15/16 16:45
580-64136-10	MW003-E3	Water	11/15/16 15:00	11/15/16 16:45
580-64136-11	MW006R-E3	Water	11/15/16 15:50	11/15/16 16:45



64136

55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700



580-64136 Chain of Custody

# Chain of Custody Record

Field Sampler(s):

**Client Contact**  
 Project Name: Parcel 15 - POT  
 Project # or PO #: 603.002.014  
 Project Manager: Erin Hughes  
 Phone #: 971-200-8528  
 Report to email: echughes@gsws.com

**For Lab Use Only:**  
 SDG: \_\_\_\_\_  
 Custody Seals intact?  
 Hand delivered?  
 Cooler Temp: \_\_\_\_\_ °C  
 Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Analysis Turnaround Time:**  
 Standard 21 day TAT on Most Analyses  
 Rush 5 day on Dissolved Metals in Porewater

Laboratory														Lab PM
TestAmerica										Brooks				Brooks Ben Wozniak 206-753-6158
Analysis Requested														
SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4, dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	

Lab PM

Brooks  
Ben Wozniak  
206-753-6158

TestAmerica  
Rob Greer  
253-922-5047

Sample Specific Notes

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.
-1 PWMB-E3	11/14/16	1615	-	G	W	7
WCTSW001B-E3		2045	3515			10
-3 WCTSW002B-E3		2130	2080			10
WCTSW003B-E3		2210	4498			10
-5 WCTSW004B-E3		2300	359			7
OF #2-E3		2020	12550			5
-7 OF #3-E3		2230	7178			5
BWSW001-E3	11/15/16	1615	31080			10
-9 USSW001-E3		1445	166			10
MW003-E3		1500	759			7
-11 MW006R-E3		1550	681			7

**Possible Hazard Identification:**  
 Are samples hazardous?  No  
 If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
 select hazard(s):  
 Relinquished by: Gene Fowler GSI Date/Time: 11/15/16 1645

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
 Received by: Tommy Date/Time: 11/15/16 1645

Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #:

TB Cooler IR2 Cor 12.0 Unc 12.1 - dro  
 Cooler Dsc By Blw/w @ Lab  
 Wet/Packs Packing other

TB Cooler IR2 Cor 11.6 Unc 11.7 w/c  
 Cooler Dsc By Blw/w @ Lab  
 Wet/Packs Packing other

TB Cooler IR2 Cor 11.2 Unc 11.3 w/c  
 Cooler Dsc By Blw/w @ Lab  
 Wet/Packs Packing other

TB Cooler IR2 Cor 10.9 Unc 11.0 w/c  
 Cooler Dsc By Blw/w @ Lab  
 Wet/Packs Packing other

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Lab PM: Greer, Robert A	Carrier Tracking Net(s)	COC No: 580-42329-1	
Client Contact: Shipping/Receiving		E-Mail: robert.greer@testamericainc.com	State of Origin: Washington	Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington	Job #: 580-64136-1		
Address: 4955 Yarrow Street, City: Anvada State, Zip: CO, 80002 Phone: 303-736-0100(Tel) 303-431-7171(Fax) Email:		<b>Analysis Requested</b>			
Due Date Requested: 12/2/2016		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:			
TAT Requested (days):		Total Number of containers			
FO #:		Field Filtered Sample (Yes or No)			
WO #:		Perform MS/MSD (Yes or No)			
Project #: 58009703		SMA500_S2_D/FIELD_FLTRD_Dissolved Sulfide, field-filtered			
Site: Parcel 15 RI		Matrix (W=water, S=solid, O=waste/oil, BT=Soil, A=Air)			
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code:	Special Instructions/Note:
PWMB-E3 (580-64136-1)	11/14/16	16:15 Pacific	Water		
WCTSW001B-E3 (580-64136-2)	11/14/16	20:45 Pacific	Water		
WCTSW002B-E3 (580-64136-3)	11/14/16	21:30 Pacific	Water		
WCTSW003B-E3 (580-64136-4)	11/14/16	22:10 Pacific	Water		
BWSW001-E3 (580-64136-8)	11/15/16	16:15 Pacific	Water		
USSW001-E3 (580-64136-9)	11/15/16	14:45 Pacific	Water		
<p>Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte &amp; accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.</p>					
<b>Possible Hazard Identification</b>					
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/QC Requirements:					
Primary Deliverable Rank: 2					
Empty Kit Relinquished by:		Date:			
Relinquished by: <i>Tom Blank</i>		Date/Time: 11/16/16	Company: TA-Sea	Received by: <i>Lead PWA</i>	Date/Time: 11-17-16
Relinquished by:		Date/Time:	Company:	Received by:	Date/Time: 1000
Relinquished by:		Date/Time:	Company:	Received by:	Date/Time:
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.: <i>0.9 ICH50.0 Transfer RP 11-17-16</i>			



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-64136-1

**Login Number: 64136**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Blankinship, Tom X**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	Refer to Job Narrative for details.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-64136-1

**Login Number: 64136**  
**List Number: 2**  
**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**  
**List Creation: 11/17/16 05:23 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-64164-1  
Client Project/Site: Parcel 15 RI

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Erin Carroll Hughes



Authorized for release by:  
12/7/2016 10:46:01 AM

Robert Greer, Project Manager II  
(253)922-2310  
[robert.greer@testamericainc.com](mailto:robert.greer@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

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**Job ID: 580-64164-1**

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**Laboratory: TestAmerica Seattle**

## Narrative

---

**Job Narrative**  
**580-64164-1**

## Comments

No additional comments.

## Receipt

The samples were received on 11/16/2016 5:33 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 12.6° C and 13.1° C.

## Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

## General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.





# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: HC002-E3**

**Date Collected: 11/16/16 16:15**

**Date Received: 11/16/16 17:33**

**Lab Sample ID: 580-64164-1**

**Matrix: Water**

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
<b>Dissolved Organic Carbon</b>	<b>75</b>		20	3.8	mg/L			11/29/16 11:29	20

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: MW007-E3**

**Lab Sample ID: 580-64164-2**

**Date Collected: 11/16/16 12:00**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

### Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	53		1.1	0.023	mg/L		12/01/16 19:12	12/02/16 12:01	1
Magnesium	30		1.1	0.13	mg/L		12/01/16 19:12	12/02/16 12:01	1
Potassium	24		3.3	0.15	mg/L		12/01/16 19:12	12/02/16 12:01	1
Sodium	37		2.0	0.55	mg/L		12/01/16 19:12	12/02/16 12:01	1

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12		5.0	1.4	ug/L		12/01/16 19:12	12/02/16 12:16	5

### Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	16		5.0	1.4	ug/L		12/01/16 19:12	12/02/16 12:25	5
Iron	78000	B	200	29	ug/L		12/01/16 19:12	12/02/16 12:25	5
Manganese	3100		10	1.8	ug/L		12/01/16 19:12	12/02/16 12:25	5

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	12		1.0	0.19	mg/L			11/22/16 11:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	55		6.7	6.7	mg/L			11/18/16 10:39	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.73		0.20	0.030	mg/L			11/17/16 20:31	1
Nitrite as N	ND		0.40	0.080	mg/L			11/17/16 20:31	1
Chloride	26		0.90	0.040	mg/L			11/17/16 20:31	1
Nitrate as N	0.13	J	0.20	0.020	mg/L			11/17/16 20:31	1
Bromide	ND		0.50	0.060	mg/L			11/17/16 20:31	1
Sulfate	95	F1	1.2	0.26	mg/L			11/17/16 20:31	1
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	23		20	3.8	mg/L			11/29/16 11:29	20

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/17/16 16:05	1
Alkalinity	310		5.0	5.0	mg/L			11/17/16 14:57	1
Bicarbonate Alkalinity as CaCO3	310		5.0	5.0	mg/L			11/17/16 14:57	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1

TestAmerica Seattle

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: MW009-E3**

**Lab Sample ID: 580-64164-3**

**Date Collected: 11/16/16 15:00**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

### Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	50		1.1	0.023	mg/L		12/05/16 13:05	12/06/16 10:20	1
Magnesium	31		1.1	0.13	mg/L		12/05/16 13:05	12/06/16 10:20	1
Potassium	21		3.3	0.15	mg/L		12/05/16 13:05	12/06/16 10:20	1
Sodium	61		2.0	0.55	mg/L		12/05/16 13:05	12/06/16 10:20	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	66		4.0	0.76	mg/L			11/22/16 11:47	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	150		10	10	mg/L			11/18/16 10:39	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.87		0.20	0.030	mg/L			11/17/16 21:18	1
Nitrite as N	ND		0.40	0.080	mg/L			11/17/16 21:18	1
Chloride	47		0.90	0.040	mg/L			11/17/16 21:18	1
Nitrate as N	ND		0.20	0.020	mg/L			11/17/16 21:18	1
Bromide	0.69		0.50	0.060	mg/L			11/17/16 21:18	1
Sulfate	9.9		1.2	0.26	mg/L			11/17/16 21:18	1
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	60		20	3.8	mg/L			11/29/16 11:29	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/17/16 16:05	1
Alkalinity	660		5.0	5.0	mg/L			11/17/16 14:57	1
Bicarbonate Alkalinity as CaCO3	660		5.0	5.0	mg/L			11/17/16 14:57	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: B001R-E3**

**Lab Sample ID: 580-64164-4**

**Date Collected: 11/16/16 11:00**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100		1.1	0.023	mg/L		12/05/16 13:05	12/06/16 10:45	1
Magnesium	53		1.1	0.13	mg/L		12/05/16 13:05	12/06/16 10:45	1
Potassium	53		3.3	0.15	mg/L		12/05/16 13:05	12/06/16 10:45	1
Sodium	120		2.0	0.55	mg/L		12/05/16 13:05	12/06/16 10:45	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	89		20	3.8	mg/L			11/25/16 11:22	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	200		10	10	mg/L			11/18/16 10:39	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.75		0.20	0.030	mg/L			11/17/16 21:33	1
Nitrite as N	ND		0.40	0.080	mg/L			11/17/16 21:33	1
Chloride	51		0.90	0.040	mg/L			11/17/16 21:33	1
Nitrate as N	0.11	J	0.20	0.020	mg/L			11/17/16 21:33	1
Bromide	0.52		0.50	0.060	mg/L			11/17/16 21:33	1
Sulfate	0.53	J	1.2	0.26	mg/L			11/17/16 21:33	1
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	88		20	3.8	mg/L			11/29/16 11:29	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.78		0.10	0.10	mg/L			11/17/16 16:05	1
Alkalinity	840		5.0	5.0	mg/L			11/17/16 14:57	1
Bicarbonate Alkalinity as CaCO3	840		5.0	5.0	mg/L			11/17/16 14:57	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: MW507-E3**

**Lab Sample ID: 580-64164-5**

**Date Collected: 11/16/16 11:30**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	59		1.1	0.023	mg/L		12/05/16 13:05	12/06/16 10:49	1
Magnesium	35		1.1	0.13	mg/L		12/05/16 13:05	12/06/16 10:49	1
Potassium	24		3.3	0.15	mg/L		12/05/16 13:05	12/06/16 10:49	1
Sodium	39		2.0	0.55	mg/L		12/05/16 13:05	12/06/16 10:49	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	13		1.0	0.19	mg/L			11/25/16 11:22	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	60		5.0	5.0	mg/L			11/18/16 10:39	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.71		0.20	0.030	mg/L			11/17/16 21:48	1
Nitrite as N	ND		0.40	0.080	mg/L			11/17/16 21:48	1
Chloride	25		0.90	0.040	mg/L			11/17/16 21:48	1
Nitrate as N	ND		0.20	0.020	mg/L			11/17/16 21:48	1
Bromide	ND		0.50	0.060	mg/L			11/17/16 21:48	1
Sulfate	95		1.2	0.26	mg/L			11/17/16 21:48	1
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	21		2.0	0.38	mg/L			11/30/16 11:30	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/17/16 16:05	1
Alkalinity	370		5.0	5.0	mg/L			11/17/16 14:57	1
Bicarbonate Alkalinity as CaCO3	370		5.0	5.0	mg/L			11/17/16 14:57	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: MW010-E3**

**Lab Sample ID: 580-64164-6**

**Date Collected: 11/16/16 11:00**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100		1.1	0.023	mg/L		12/05/16 13:05	12/06/16 10:52	1
Magnesium	36		1.1	0.13	mg/L		12/05/16 13:05	12/06/16 10:52	1
Potassium	32		3.3	0.15	mg/L		12/05/16 13:05	12/06/16 10:52	1
Sodium	81		2.0	0.55	mg/L		12/05/16 13:05	12/06/16 10:52	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	82		20	3.8	mg/L			11/25/16 11:22	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	160		10	10	mg/L			11/18/16 10:39	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.43		0.20	0.030	mg/L			11/17/16 22:04	1
Nitrite as N	ND		0.40	0.080	mg/L			11/17/16 22:04	1
Chloride	10		0.90	0.040	mg/L			11/17/16 22:04	1
Nitrate as N	ND		0.20	0.020	mg/L			11/17/16 22:04	1
Bromide	ND		0.50	0.060	mg/L			11/17/16 22:04	1
Sulfate	0.54	J	1.2	0.26	mg/L			11/17/16 22:04	1
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	81		20	3.8	mg/L			11/29/16 11:29	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.72		0.10	0.10	mg/L			11/17/16 16:05	1
Alkalinity	750		5.0	5.0	mg/L			11/17/16 14:57	1
Bicarbonate Alkalinity as CaCO3	750		5.0	5.0	mg/L			11/17/16 14:57	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: MW013-E3**

**Lab Sample ID: 580-64164-7**

**Date Collected: 11/16/16 12:15**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	86		1.1	0.023	mg/L		12/05/16 13:05	12/06/16 10:56	1
Magnesium	18		1.1	0.13	mg/L		12/05/16 13:05	12/06/16 10:56	1
Potassium	12		3.3	0.15	mg/L		12/05/16 13:05	12/06/16 10:56	1
Sodium	63		2.0	0.55	mg/L		12/05/16 13:05	12/06/16 10:56	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	19		2.0	0.38	mg/L			11/28/16 10:09	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	81		10	10	mg/L			11/18/16 10:39	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			11/18/16 06:47	1
Nitrite as N	ND		0.40	0.080	mg/L			11/18/16 06:47	1
Chloride	ND		0.90	0.040	mg/L			11/18/16 06:47	1
Nitrate as N	ND		0.20	0.020	mg/L			11/18/16 06:47	1
Bromide	ND		0.50	0.060	mg/L			11/18/16 06:47	1
Sulfate	ND		1.2	0.26	mg/L			11/18/16 06:47	1
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	22		2.0	0.38	mg/L			11/29/16 11:29	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.24		0.10	0.10	mg/L			11/17/16 16:05	1
Alkalinity	520		5.0	5.0	mg/L			11/17/16 14:57	1
Bicarbonate Alkalinity as CaCO3	520		5.0	5.0	mg/L			11/17/16 14:57	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: B006R-E3**

**Lab Sample ID: 580-64164-8**

**Date Collected: 11/16/16 13:40**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>100</b>		20	3.8	mg/L			11/25/16 11:33	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>42</b>		2.0	2.0	mg/L			11/18/16 10:39	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
<b>Dissolved Organic Carbon</b>	<b>100</b>	<b>F1</b>	20	3.8	mg/L			11/30/16 19:09	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: B003R-E3**

**Lab Sample ID: 580-64164-9**

**Date Collected: 11/16/16 16:45**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>51</b>		20	3.8	mg/L			11/25/16 11:33	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>3.0</b>		2.0	2.0	mg/L			11/18/16 10:39	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
<b>Dissolved Organic Carbon</b>	<b>55</b>		20	3.8	mg/L			11/30/16 19:09	20

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: MW012-E3**

**Lab Sample ID: 580-64164-10**

**Date Collected: 11/16/16 16:20**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	93		1.1	0.023	mg/L		12/05/16 13:05	12/06/16 10:59	1
Magnesium	41		1.1	0.13	mg/L		12/05/16 13:05	12/06/16 10:59	1
Potassium	38		3.3	0.15	mg/L		12/05/16 13:05	12/06/16 10:59	1
Sodium	37		2.0	0.55	mg/L		12/05/16 13:05	12/06/16 10:59	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	64		20	3.8	mg/L			11/25/16 11:33	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	130		10	10	mg/L			11/18/16 10:39	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.62		0.20	0.030	mg/L			11/18/16 07:02	1
Nitrite as N	ND		0.40	0.080	mg/L			11/18/16 07:02	1
Chloride	14		0.90	0.040	mg/L			11/18/16 07:02	1
Nitrate as N	ND		0.20	0.020	mg/L			11/18/16 07:02	1
Bromide	ND		0.50	0.060	mg/L			11/18/16 07:02	1
Sulfate	28		1.2	0.26	mg/L			11/18/16 07:02	1
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1
Dissolved Organic Carbon	64		20	3.8	mg/L			11/30/16 19:09	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/17/16 16:05	1
Alkalinity	650		5.0	5.0	mg/L			11/17/16 14:57	1
Bicarbonate Alkalinity as CaCO3	650		5.0	5.0	mg/L			11/17/16 14:57	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/17/16 14:57	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-233686/22-A**  
**Matrix: Water**  
**Analysis Batch: 233746**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233686**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		12/01/16 19:12	12/02/16 11:26	1
Magnesium	ND		1.1	0.13	mg/L		12/01/16 19:12	12/02/16 11:26	1
Potassium	ND		3.3	0.15	mg/L		12/01/16 19:12	12/02/16 11:26	1
Sodium	ND		2.0	0.55	mg/L		12/01/16 19:12	12/02/16 11:26	1

**Lab Sample ID: LCS 580-233686/23-A**  
**Matrix: Water**  
**Analysis Batch: 233746**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233686**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	19.7		mg/L		98	80 - 120
Magnesium	20.0	18.8		mg/L		94	80 - 120
Potassium	20.0	21.3		mg/L		107	80 - 120
Sodium	20.0	21.6		mg/L		108	80 - 120

**Lab Sample ID: LCSD 580-233686/24-A**  
**Matrix: Water**  
**Analysis Batch: 233746**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233686**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	20.0	19.0		mg/L		95	80 - 120	4	20
Magnesium	20.0	18.2		mg/L		91	80 - 120	3	20
Potassium	20.0	20.6		mg/L		103	80 - 120	4	20
Sodium	20.0	21.4		mg/L		107	80 - 120	1	20

**Lab Sample ID: MB 580-233869/13-A**  
**Matrix: Water**  
**Analysis Batch: 233955**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233869**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		12/05/16 13:05	12/06/16 10:10	1
Magnesium	ND		1.1	0.13	mg/L		12/05/16 13:05	12/06/16 10:10	1
Potassium	ND		3.3	0.15	mg/L		12/05/16 13:05	12/06/16 10:10	1
Sodium	ND		2.0	0.55	mg/L		12/05/16 13:05	12/06/16 10:10	1

**Lab Sample ID: LCS 580-233869/14-A**  
**Matrix: Water**  
**Analysis Batch: 233955**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233869**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	20.8		mg/L		104	80 - 120
Magnesium	20.0	21.1		mg/L		105	80 - 120
Potassium	20.0	21.0		mg/L		105	80 - 120
Sodium	20.0	21.2		mg/L		106	80 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

## Method: 6010C - Metals (ICP) (Continued)

**Lab Sample ID: LCSD 580-233869/15-A**  
**Matrix: Water**  
**Analysis Batch: 233955**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233869**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Calcium	20.0	20.7		mg/L		103	80 - 120	1	20
Magnesium	20.0	20.8		mg/L		104	80 - 120	1	20
Potassium	20.0	20.9		mg/L		104	80 - 120	1	20
Sodium	20.0	21.2		mg/L		106	80 - 120	0	20

**Lab Sample ID: 580-64164-3 MS**  
**Matrix: Water**  
**Analysis Batch: 233955**

**Client Sample ID: MW009-E3**  
**Prep Type: Dissolved**  
**Prep Batch: 233869**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Calcium	50		20.0	72.6		mg/L		114	75 - 125		
Magnesium	31		20.0	52.8		mg/L		109	75 - 125		
Potassium	21		20.0	43.1		mg/L		110	75 - 125		
Sodium	61		20.0	86.1		mg/L		125	75 - 125		

**Lab Sample ID: 580-64164-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 233955**

**Client Sample ID: MW009-E3**  
**Prep Type: Dissolved**  
**Prep Batch: 233869**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Calcium	50		20.0	70.7		mg/L		104	75 - 125	3	20
Magnesium	31		20.0	51.3		mg/L		102	75 - 125	3	20
Potassium	21		20.0	41.9		mg/L		104	75 - 125	3	20
Sodium	61		20.0	83.1		mg/L		110	75 - 125	4	20

**Lab Sample ID: 580-64164-3 DU**  
**Matrix: Water**  
**Analysis Batch: 233955**

**Client Sample ID: MW009-E3**  
**Prep Type: Dissolved**  
**Prep Batch: 233869**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Calcium	50		52.9		mg/L		6	20
Magnesium	31		32.9		mg/L		6	20
Potassium	21		22.4		mg/L		6	20
Sodium	61		64.7		mg/L		6	20

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 580-233686/22-A**  
**Matrix: Water**  
**Analysis Batch: 233821**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233686**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	1.4	ug/L		12/01/16 19:12	12/02/16 10:18	5
Iron	35.5	J	200	29	ug/L		12/01/16 19:12	12/02/16 10:18	5
Manganese	ND		10	1.8	ug/L		12/01/16 19:12	12/02/16 10:18	5

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 580-233686/23-A**  
**Matrix: Water**  
**Analysis Batch: 233821**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233686**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	4000	4120		ug/L		103	80 - 120
Iron	22000	24000		ug/L		109	80 - 120
Manganese	1000	1020		ug/L		102	80 - 120

**Lab Sample ID: LCSD 580-233686/24-A**  
**Matrix: Water**  
**Analysis Batch: 233821**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233686**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	4000	4190		ug/L		105	80 - 120	1	20
Iron	22000	24200		ug/L		110	80 - 120	1	20
Manganese	1000	1040		ug/L		104	80 - 120	1	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 580-232731/3**  
**Matrix: Water**  
**Analysis Batch: 232731**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.080	mg/L			11/17/16 19:45	1
Nitrate as N	ND		0.20	0.020	mg/L			11/17/16 19:45	1

**Lab Sample ID: LCS 580-232731/4**  
**Matrix: Water**  
**Analysis Batch: 232731**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Nitrite as N	5.00	5.25		mg/L		105	90 - 110
Nitrate as N	5.00	5.12		mg/L		102	90 - 110

**Lab Sample ID: LCSD 580-232731/5**  
**Matrix: Water**  
**Analysis Batch: 232731**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Nitrite as N	5.00	5.23		mg/L		105	90 - 110	0	15
Nitrate as N	5.00	5.09		mg/L		102	90 - 110	1	15

**Lab Sample ID: MB 580-232732/3**  
**Matrix: Water**  
**Analysis Batch: 232732**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			11/17/16 19:45	1
Chloride	ND		0.90	0.040	mg/L			11/17/16 19:45	1
Bromide	ND		0.50	0.060	mg/L			11/17/16 19:45	1
Sulfate	ND		1.2	0.26	mg/L			11/17/16 19:45	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 580-232732/4**  
**Matrix: Water**  
**Analysis Batch: 232732**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	5.25		mg/L		105	90 - 110
Chloride	50.0	52.1		mg/L		104	90 - 110
Bromide	10.0	10.5		mg/L		105	90 - 110
Sulfate	50.0	51.0		mg/L		102	90 - 110

**Lab Sample ID: LCSD 580-232732/5**  
**Matrix: Water**  
**Analysis Batch: 232732**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	5.24		mg/L		105	90 - 110	0	15
Chloride	50.0	51.9		mg/L		104	90 - 110	0	15
Bromide	10.0	10.4		mg/L		104	90 - 110	1	15
Sulfate	50.0	50.9		mg/L		102	90 - 110	0	15

**Lab Sample ID: 580-64164-2 MS**  
**Matrix: Water**  
**Analysis Batch: 232731**

**Client Sample ID: MW007-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	ND		5.00	5.43		mg/L		109	90 - 110
Nitrate as N	0.13	J	5.00	5.36		mg/L		105	90 - 110

**Lab Sample ID: 580-64164-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 232731**

**Client Sample ID: MW007-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	ND		5.00	5.45		mg/L		109	90 - 110	0	15
Nitrate as N	0.13	J	5.00	5.37		mg/L		105	90 - 110	0	15

**Lab Sample ID: 580-64164-2 MS**  
**Matrix: Water**  
**Analysis Batch: 232732**

**Client Sample ID: MW007-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.73		5.00	6.03		mg/L		106	90 - 110
Chloride	26		50.0	80.2		mg/L		109	90 - 110
Bromide	ND		10.0	11.0		mg/L		110	90 - 110
Sulfate	95	F1	50.0	154	F1	mg/L		119	90 - 110

**Lab Sample ID: 580-64164-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 232732**

**Client Sample ID: MW007-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.73		5.00	6.06		mg/L		107	90 - 110	0	15
Chloride	26		50.0	79.8		mg/L		108	90 - 110	1	15
Bromide	ND		10.0	11.0		mg/L		110	90 - 110	0	15

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 580-64164-2 MSD  
Matrix: Water  
Analysis Batch: 232732

Client Sample ID: MW007-E3  
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	95	F1	50.0	154	F1	mg/L		119	90 - 110	0	15

## Method: 365.1 - Phosphorus, Ortho

Lab Sample ID: MB 580-232715/1  
Matrix: Water  
Analysis Batch: 232715

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/17/16 16:05	1

Lab Sample ID: LCS 580-232715/2  
Matrix: Water  
Analysis Batch: 232715

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.94		mg/L		97	90 - 110

## Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 580-232701/2  
Matrix: Water  
Analysis Batch: 232701

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	95.4		mg/L		95	85 - 115

## Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 580-232748/1  
Matrix: Water  
Analysis Batch: 232748

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			11/18/16 10:39	1

Lab Sample ID: LCS 580-232748/2  
Matrix: Water  
Analysis Batch: 232748

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	23.2		mg/L		84	70.6 - 120

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID: MB 280-352469/41**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1

**Lab Sample ID: MB 280-352469/5**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			11/21/16 14:25	1

**Lab Sample ID: LCS 280-352469/3**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.576	0.485		mg/L		84	80 - 119

**Lab Sample ID: LCS 280-352469/39**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.576	0.490		mg/L		85	80 - 119

**Lab Sample ID: LCSD 280-352469/4**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.576	0.473		mg/L		82	80 - 119	3	10

**Lab Sample ID: LCSD 280-352469/40**  
**Matrix: Water**  
**Analysis Batch: 352469**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.576	0.497		mg/L		86	80 - 119	2	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-233159/3**  
**Matrix: Water**  
**Analysis Batch: 233159**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			11/22/16 11:47	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: LCS 580-233159/4**  
**Matrix: Water**  
**Analysis Batch: 233159**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.77		mg/L		98	85 - 115

**Lab Sample ID: MB 580-233299/3**  
**Matrix: Water**  
**Analysis Batch: 233299**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			11/25/16 11:22	1

**Lab Sample ID: LCS 580-233299/4**  
**Matrix: Water**  
**Analysis Batch: 233299**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	10.1		mg/L		101	85 - 115

**Lab Sample ID: MB 580-233300/3**  
**Matrix: Water**  
**Analysis Batch: 233300**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			11/25/16 11:33	1

**Lab Sample ID: LCS 580-233300/4**  
**Matrix: Water**  
**Analysis Batch: 233300**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.51		mg/L		95	85 - 115

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-233562/3**  
**Matrix: Water**  
**Analysis Batch: 233562**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			11/29/16 11:29	1

**Lab Sample ID: LCS 580-233562/4**  
**Matrix: Water**  
**Analysis Batch: 233562**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.42		mg/L		94	85 - 115

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

**Lab Sample ID: MB 580-233685/3**  
**Matrix: Water**  
**Analysis Batch: 233685**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			11/30/16 19:09	1

**Lab Sample ID: LCS 580-233685/4**  
**Matrix: Water**  
**Analysis Batch: 233685**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.5		mg/L		105	85 - 115

**Lab Sample ID: 580-64164-8 MS**  
**Matrix: Water**  
**Analysis Batch: 233685**

**Client Sample ID: B006R-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	100	F1	200	253	F1	mg/L		76	85 - 115

**Lab Sample ID: 580-64164-8 MSD**  
**Matrix: Water**  
**Analysis Batch: 233685**

**Client Sample ID: B006R-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	100	F1	200	259	F1	mg/L		79	85 - 115	2	20

**Lab Sample ID: 580-64164-8 DU**  
**Matrix: Water**  
**Analysis Batch: 233685**

**Client Sample ID: B006R-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	100	F1	96.5		mg/L		5	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: HC002-E3**

**Date Collected: 11/16/16 16:15**

**Date Received: 11/16/16 17:33**

**Lab Sample ID: 580-64164-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		20	233562	11/29/16 11:29	Z1T	TAL SEA

**Client Sample ID: MW007-E3**

**Date Collected: 11/16/16 12:00**

**Date Received: 11/16/16 17:33**

**Lab Sample ID: 580-64164-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			233686	12/01/16 19:12	PAB	TAL SEA
Dissolved	Analysis	6010C		1	233746	12/02/16 12:01	HJM	TAL SEA
Dissolved	Prep	3005A			233686	12/01/16 19:12	PAB	TAL SEA
Dissolved	Analysis	6020A		5	233821	12/02/16 12:25	FCW	TAL SEA
Total Recoverable	Prep	3005A			233686	12/01/16 19:12	PAB	TAL SEA
Total Recoverable	Analysis	6020A		5	233821	12/02/16 12:16	FCW	TAL SEA
Dissolved	Analysis	300.0		1	232731	11/17/16 20:31	RSB	TAL SEA
Dissolved	Analysis	300.0		1	232732	11/17/16 20:31	RSB	TAL SEA
Dissolved	Analysis	365.1		1	232715	11/17/16 16:05	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	232701	11/17/16 14:57	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	232748	11/18/16 10:39	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		20	233562	11/29/16 11:29	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	233159	11/22/16 11:47	Z1T	TAL SEA

**Client Sample ID: MW009-E3**

**Date Collected: 11/16/16 15:00**

**Date Received: 11/16/16 17:33**

**Lab Sample ID: 580-64164-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			233869	12/05/16 13:05	PAB	TAL SEA
Dissolved	Analysis	6010C		1	233955	12/06/16 10:20	HJM	TAL SEA
Dissolved	Analysis	300.0		1	232731	11/17/16 21:18	RSB	TAL SEA
Dissolved	Analysis	300.0		1	232732	11/17/16 21:18	RSB	TAL SEA
Dissolved	Analysis	365.1		1	232715	11/17/16 16:05	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	232701	11/17/16 14:57	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	232748	11/18/16 10:39	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		20	233562	11/29/16 11:29	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	233159	11/22/16 11:47	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: B001R-E3**

**Lab Sample ID: 580-64164-4**

**Date Collected: 11/16/16 11:00**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			233869	12/05/16 13:05	PAB	TAL SEA
Dissolved	Analysis	6010C		1	233955	12/06/16 10:45	HJM	TAL SEA
Dissolved	Analysis	300.0		1	232731	11/17/16 21:33	RSB	TAL SEA
Dissolved	Analysis	300.0		1	232732	11/17/16 21:33	RSB	TAL SEA
Dissolved	Analysis	365.1		1	232715	11/17/16 16:05	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	232701	11/17/16 14:57	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	232748	11/18/16 10:39	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		20	233562	11/29/16 11:29	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	233299	11/25/16 11:22	Z1T	TAL SEA

**Client Sample ID: MW507-E3**

**Lab Sample ID: 580-64164-5**

**Date Collected: 11/16/16 11:30**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			233869	12/05/16 13:05	PAB	TAL SEA
Dissolved	Analysis	6010C		1	233955	12/06/16 10:49	HJM	TAL SEA
Dissolved	Analysis	300.0		1	232731	11/17/16 21:48	RSB	TAL SEA
Dissolved	Analysis	300.0		1	232732	11/17/16 21:48	RSB	TAL SEA
Dissolved	Analysis	365.1		1	232715	11/17/16 16:05	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	232701	11/17/16 14:57	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	232748	11/18/16 10:39	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		2	233562	11/30/16 11:30	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	233299	11/25/16 11:22	Z1T	TAL SEA

**Client Sample ID: MW010-E3**

**Lab Sample ID: 580-64164-6**

**Date Collected: 11/16/16 11:00**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			233869	12/05/16 13:05	PAB	TAL SEA
Dissolved	Analysis	6010C		1	233955	12/06/16 10:52	HJM	TAL SEA
Dissolved	Analysis	300.0		1	232731	11/17/16 22:04	RSB	TAL SEA
Dissolved	Analysis	300.0		1	232732	11/17/16 22:04	RSB	TAL SEA
Dissolved	Analysis	365.1		1	232715	11/17/16 16:05	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	232701	11/17/16 14:57	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	232748	11/18/16 10:39	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		20	233562	11/29/16 11:29	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: MW010-E3**

**Date Collected: 11/16/16 11:00**

**Date Received: 11/16/16 17:33**

**Lab Sample ID: 580-64164-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 5310B		20	233299	11/25/16 11:22	Z1T	TAL SEA

**Client Sample ID: MW013-E3**

**Date Collected: 11/16/16 12:15**

**Date Received: 11/16/16 17:33**

**Lab Sample ID: 580-64164-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			233869	12/05/16 13:05	PAB	TAL SEA
Dissolved	Analysis	6010C		1	233955	12/06/16 10:56	HJM	TAL SEA
Dissolved	Analysis	300.0		1	232731	11/18/16 06:47	RSB	TAL SEA
Dissolved	Analysis	300.0		1	232732	11/18/16 06:47	RSB	TAL SEA
Dissolved	Analysis	365.1		1	232715	11/17/16 16:05	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	232701	11/17/16 14:57	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	232748	11/18/16 10:39	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		2	233562	11/29/16 11:29	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	233300	11/28/16 10:09	Z1T	TAL SEA

**Client Sample ID: B006R-E3**

**Date Collected: 11/16/16 13:40**

**Date Received: 11/16/16 17:33**

**Lab Sample ID: 580-64164-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	232748	11/18/16 10:39	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		20	233685	11/30/16 19:09	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	233300	11/25/16 11:33	Z1T	TAL SEA

**Client Sample ID: B003R-E3**

**Date Collected: 11/16/16 16:45**

**Date Received: 11/16/16 17:33**

**Lab Sample ID: 580-64164-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	232748	11/18/16 10:39	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		20	233685	11/30/16 19:09	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	233300	11/25/16 11:33	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

**Client Sample ID: MW012-E3**

**Lab Sample ID: 580-64164-10**

**Date Collected: 11/16/16 16:20**

**Matrix: Water**

**Date Received: 11/16/16 17:33**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			233869	12/05/16 13:05	PAB	TAL SEA
Dissolved	Analysis	6010C		1	233955	12/06/16 10:59	HJM	TAL SEA
Dissolved	Analysis	300.0		1	232731	11/18/16 07:02	RSB	TAL SEA
Dissolved	Analysis	300.0		1	232732	11/18/16 07:02	RSB	TAL SEA
Dissolved	Analysis	365.1		1	232715	11/17/16 16:05	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	232701	11/17/16 14:57	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	232748	11/18/16 10:39	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352469	11/21/16 14:25	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		20	233685	11/30/16 19:09	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	233300	11/25/16 11:33	Z1T	TAL SEA

### Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6020A	3005A	Water	Iron
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 5310B		Water	Dissolved Organic Carbon

## Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-02-17




# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI

TestAmerica Job ID: 580-64164-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-64164-1	HC002-E3	Water	11/16/16 16:15	11/16/16 17:33
580-64164-2	MW007-E3	Water	11/16/16 12:00	11/16/16 17:33
580-64164-3	MW009-E3	Water	11/16/16 15:00	11/16/16 17:33
580-64164-4	B001R-E3	Water	11/16/16 11:00	11/16/16 17:33
580-64164-5	MW507-E3	Water	11/16/16 11:30	11/16/16 17:33
580-64164-6	MW010-E3	Water	11/16/16 11:00	11/16/16 17:33
580-64164-7	MW013-E3	Water	11/16/16 12:15	11/16/16 17:33
580-64164-8	B006R-E3	Water	11/16/16 13:40	11/16/16 17:33
580-64164-9	B003R-E3	Water	11/16/16 16:45	11/16/16 17:33
580-64164-10	MW012-E3	Water	11/16/16 16:20	11/16/16 17:33

 55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

Field Sampler(s):  
*SK, PP, RF*

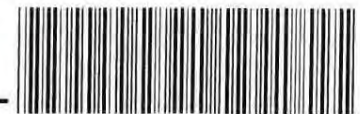
<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>										<b>Lab PM</b>					
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>					<b>Brooks</b>					Brooks Ben Wozniak 206-753-6158					
Project # or PO #: 603.002.014	Custody Seals intact?	<b>Analysis Requested</b>															
Project Manager: Erin Hughes	Hand delivered?	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	TestAmerica Rob Greer 253-922-5047
Phone #: 971-200-8528	Cooler Temp: _____ °C																
Report to email: echughes@gsiws.com	Therm ID No.: _____ Therm Exp. _____																
<b>Analysis Turnaround Time:</b>																	
Standard 21 day TAT on Most Analyses																	
Rush 5 day on Dissolved Metals in Porewater																	

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes	
HC002-E3	11/16	1615	839	G	GW	6		X	X											X	X	X	
MW007-E3	11/16	1200	570	G	GW	13	X	X	X	X	X	X	X	X	X	X	X			X	X	X	
MW009-E3	11/16	1500	1192	G	GW	12	X	X	X	X	X	X	X	X	X	X	X			X	X	X	
B002R-E3	11/16	1100	1364	G	GW	12	X	X	X	X	X	X	X	X	X	X	X			X	X	X	
MW507-E3	11/16	1130	570	G	GW	12	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			X	X	X	
MW010-E3	11/16	1100	1302	G	GW	12	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			X	X	X	
MW013-E3	11/16	1215	830	G	GW	12	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			X	X	X	
<del>MW014-E3</del>																							
B006R-E3	11/16	1340	2165	G	GW	6	X	X	X	X										X	X		
B003R-E3	11/16	1645	4018	G	GW	6	X	X	X	X										X	X		
MW012-E3	11/16	1620	1173	G	GW		X	X	X	X	X	X	X	X	X	X	X			X	X	X	

<b>Possible Hazard Identification:</b>	<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b>
Are samples hazardous? <input checked="" type="checkbox"/> No	
If yes, select hazard(s): <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic	<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year
Relinquished by: <i>Steven Kuhlman</i> Date/Time: 11/16/16 5:33pm	Received by: <i>Tom Blantz</i> Date/Time: 11/16/16 17:33
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____	Received in Laboratory by: _____ Date/Time: _____

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

TB A2 Cooler Cor 12.6 Unc 12.8  
 Cooler Dsc Lg Blu/W @ Lab  
 Wet/Packs Packing other cli dro



580-64164 Chain of Custody

# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PM:	Carmer Tracking No(s):	COC No:	
Client Contact: Shipping/Receiving		Phone:	Greer, Robert A	State of Origin:	580-42401.1	
Company: TestAmerica Laboratories, Inc.		E-Mail: robert.greer@testamericainc.com	Accreditations Required (See note): State Program - Washington	Page:	Page 1 of 2	
Address: 4955 Yarrow Street,		Due Date Requested: 12/5/2016	Analysis Requested	Job #:	580-64164-1	
City: Arvada	TAT Requested (days):	Matrix	<p><b>Analysis Requested</b></p> <p>SM4500_S2_D/FIELD_FLTRD Dissolved Sulfide, Field-Filtered          Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>           Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>           Total Number of Containers</p>	Preservation Codes:	<p>M - Hexane          N - None          O - AsNaO2          P - Na2O4S          Q - Na2SO3          R - Na2SO4          S - H2SO4          T - TSP Dodecahydrate          U - Acetone          V - MCAA          W - pH 4-5          L - EDTA          Z - other (specify)</p> <p>Other:</p>	
State, Zip: CO, 80002	PO #:	Sample Type (C=comp, G=grab)		Matrix (Water, Sealed, On-tissue, AAR)		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	WO #:	Sample Time		Preservation Code:		
Email:	Project #:	Sample Date				
Parcel 15 RI	58009703	11/16/16		Water		1
Site:	SSOW#:	16:15 Pacific		Water		1
		12:00 Pacific		Water		1
		15:00 Pacific		Water		1
		11:00 Pacific		Water		1
		11:30 Pacific		Water		1
		11:00 Pacific	Water	1		
		12:15 Pacific	Water	1		
		13:40 Pacific	Water	1		
		16:45 Pacific	Water	1		
			Water	1		

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis of the matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <i>B. Shaw</i>	11/18/16	1320	Company: SEATA
Relinquished by:	Date/Time:		Company: TAD
Relinquished by:	Date/Time:		Company:
Custody Seals Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:		

Cooler Temperature(s) °C and Other Remarks:  
 0.7t-d-2 IL#5 transferred by JS 11/19/16



**Chain of Custody Record**

<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab. P.M.	Carrier Tracking No(s)	COC No.
Client Contact: Shipping/Receiving		Phone:	Greer, Robert A	State of Origin: Washington	580-42401.2
Company: TestAmerica Laboratories, Inc.		E-Mail: robert.greer@testamericainc.com	Accreditations Required (See note) State Program - Washington	Page: Page 2 of 2	Job #: 580-64164-1
Address: 4955 Yarrow Street, City: Anvada State, Zip CO, 80002 Phone: 303-736-0100(Tel) 303-431-7171(Fax) Email:		Due Date Requested: 12/5/2016 TAT Requested (days):	<b>Analysis Requested</b>		
Project Name: Parcel 15 RI Site:		PO #:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_S2 D/FIELD, FLTRD Dissolved Sulfide, field.
WO #:		Project #: 58009703 SSOW#	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_S2 D/FIELD, FLTRD Dissolved Sulfide, field.
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Seawater, OP-Water, Air)
MW012-E3 (580-64164-10)		11/16/16	16:20 Pacific	Water	Water
Total Number of containers		Special Instructions/Note:			
1					
<p>Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. I</p>					
<b>Possible Hazard Identification</b>					
Unconfirmed					
Deliverable Requested: I, II, III, IV, Other (specify) _____					
Primary Deliverable Rank: 2					
Empty Kit Relinquished by: _____ Date: _____					
Relinquished by: <i>B. Ford</i> Date: 11/18/16 13:20					
Relinquished by: _____ Date/Time: _____					
Relinquished by: _____ Date/Time: _____					
Custody Seals Intact: _____ Custody Seal No.: _____					
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other (specify) _____					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/QC Requirements:					
Received by: <i>[Signature]</i> Date/Time: 11/19/16 08:40 Company: TAP Received by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____ Cooler Temperature(s) °C and Other Remarks: _____					



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-64164-1

**Login Number: 64164**  
**List Number: 1**  
**Creator: Gall, Brandon A**

**List Source: TestAmerica Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Seals on cooler but date and time not filled out.
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-64164-1

**Login Number: 64164**  
**List Number: 2**  
**Creator: True, Joshua A**

**List Source: TestAmerica Denver**  
**List Creation: 11/19/16 12:49 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-64241-1  
Client Project/Site: Parcel 15 - POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Erin Carroll Hughes



Authorized for release by:  
12/8/2016 2:09:59 PM

Robert Greer, Project Manager II  
(253)922-2310  
[robert.greer@testamericainc.com](mailto:robert.greer@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Job ID: 580-64241-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-64241-1

#### Receipt

The samples were received on 11/17/2016 2:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 5.9° C and 8.2° C. The sample(s) is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

#### GC/MS Semi VOA

Method(s) 8270D SIM: The method blank for preparation batch 580-233226 and analytical batch 580-233346 contained Pentachlorophenol above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 8270D SIM: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW002R-E3 (580-64241-3). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

Method(s) 6020A: The method blank for preparation batch 580-233686 and analytical batch 580-233821 contained Iron above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Client Sample ID: MW004-E3**

**Lab Sample ID: 580-64241-1**

**Date Collected: 11/17/16 10:30**

**Matrix: Water**

**Date Received: 11/17/16 14:40**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.063	J B	0.087	0.015	ug/L		11/23/16 17:40	11/28/16 11:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	68		44 - 125				11/23/16 17:40	11/28/16 11:50	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	3.0	F2 F1	1.0	0.19	mg/L			11/25/16 11:33	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	360		20	20	mg/L			11/21/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.3		1.0	0.19	mg/L			11/30/16 19:09	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Client Sample ID: MW001-E3**

**Lab Sample ID: 580-64241-2**

**Date Collected: 11/17/16 12:45**

**Matrix: Water**

**Date Received: 11/17/16 14:40**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.10	B	0.086	0.015	ug/L		11/23/16 17:40	11/28/16 12:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	74		44 - 125				11/23/16 17:40	11/28/16 12:12	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	50		20	3.8	mg/L			11/25/16 11:33	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			11/21/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	49		20	3.8	mg/L			11/30/16 19:09	20

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Client Sample ID: MW002R-E3**

**Lab Sample ID: 580-64241-3**

**Date Collected: 11/17/16 11:45**

**Matrix: Water**

**Date Received: 11/17/16 14:40**

### Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	21	B	0.87	0.15	ug/L		11/23/16 17:40	11/28/16 12:34	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	88		44 - 125				11/23/16 17:40	11/28/16 12:34	10

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	5.8		2.0	0.38	mg/L			11/25/16 11:33	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			11/21/16 10:03	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	5.8		1.0	0.19	mg/L			11/30/16 19:09	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Client Sample ID: MW005R-E3**

**Lab Sample ID: 580-64241-4**

**Date Collected: 11/17/16 12:35**

**Matrix: Water**

**Date Received: 11/17/16 14:40**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	2.5	B	0.087	0.015	ug/L		11/23/16 17:40	11/28/16 12:57	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,4,6-Tribromophenol	78		44 - 125				11/23/16 17:40	11/28/16 12:57	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	19		1.0	0.19	mg/L			11/26/16 11:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			11/21/16 10:03	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	17		2.0	0.38	mg/L			12/01/16 19:18	2

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Client Sample ID: B005R-E3**

**Date Collected: 11/17/16 11:00**

**Date Received: 11/17/16 14:40**

**Lab Sample ID: 580-64241-5**

**Matrix: Water**

### Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.018	J B	0.088	0.015	ug/L		11/23/16 17:40	11/28/16 13:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	80		44 - 125				11/23/16 17:40	11/28/16 13:19	1

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	1.4	ug/L		12/01/16 19:12	12/02/16 12:20	5

### Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	1.4	ug/L		12/01/16 19:12	12/02/16 12:29	5
Iron	30000	B	200	29	ug/L		12/01/16 19:12	12/02/16 12:29	5
Manganese	1000		10	1.8	ug/L		12/01/16 19:12	12/02/16 12:29	5

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	17		1.0	0.19	mg/L			11/26/16 11:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			11/21/16 10:03	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	0.047	J	0.050	0.0070	mg/L			11/23/16 17:21	1
Dissolved Organic Carbon	15		1.0	0.19	mg/L			11/30/16 19:09	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Client Sample ID: B505R-E3**

**Lab Sample ID: 580-64241-6**

**Date Collected: 11/17/16 11:10**

**Matrix: Water**

**Date Received: 11/17/16 14:40**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.015	J B	0.087	0.015	ug/L		11/23/16 17:40	11/28/16 13:41	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,4,6-Tribromophenol	82		44 - 125				11/23/16 17:40	11/28/16 13:41	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	17		1.0	0.19	mg/L			11/26/16 11:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			11/21/16 10:03	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	0.028	J	0.050	0.0070	mg/L			11/23/16 17:21	1
Dissolved Organic Carbon	15		1.0	0.19	mg/L			11/30/16 19:09	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Client Sample ID: MW008-E3**

**Lab Sample ID: 580-64241-7**

**Date Collected: 11/17/16 11:00**

**Matrix: Water**

**Date Received: 11/17/16 14:40**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>59</b>		20	3.8	mg/L			12/01/16 19:07	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>160</b>		10	10	mg/L			11/21/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			11/23/16 17:21	1
<b>Dissolved Organic Carbon</b>	<b>64</b>		20	3.8	mg/L			12/01/16 19:18	20

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Client Sample ID: MW011-E3**  
**Date Collected: 11/17/16 12:45**  
**Date Received: 11/17/16 14:40**

**Lab Sample ID: 580-64241-8**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>60</b>		20	3.8	mg/L			12/02/16 15:25	20
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>290</b>		10	10	mg/L			11/21/16 10:03	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			11/23/16 17:21	1
<b>Dissolved Organic Carbon</b>	<b>60</b>		20	3.8	mg/L			12/06/16 14:52	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-233226/1-A**  
**Matrix: Water**  
**Analysis Batch: 233346**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 233226**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.0632	J	0.080	0.014	ug/L		11/23/16 17:40	11/28/16 10:43	1
Surrogate	%Recovery	MB Qualifier	Limits						
2,4,6-Tribromophenol	70		44 - 125						
							Prepared	Analyzed	Dil Fac
							11/23/16 17:40	11/28/16 10:43	1

**Lab Sample ID: LCS 580-233226/2-A**  
**Matrix: Water**  
**Analysis Batch: 233346**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 233226**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Pentachlorophenol	8.00	7.71		ug/L		96	20 - 134		
Surrogate	%Recovery	LCS Qualifier	Limits						
2,4,6-Tribromophenol	82		44 - 125						

**Lab Sample ID: LCSD 580-233226/3-A**  
**Matrix: Water**  
**Analysis Batch: 233346**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 233226**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	8.00	7.56		ug/L		95	20 - 134	2	35
Surrogate	%Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	79		44 - 125						

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 580-233686/22-A**  
**Matrix: Water**  
**Analysis Batch: 233821**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233686**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	1.4	ug/L		12/01/16 19:12	12/02/16 10:18	5
Iron	35.5	J	200	29	ug/L		12/01/16 19:12	12/02/16 10:18	5
Manganese	ND		10	1.8	ug/L		12/01/16 19:12	12/02/16 10:18	5

**Lab Sample ID: LCS 580-233686/23-A**  
**Matrix: Water**  
**Analysis Batch: 233821**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233686**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Arsenic	4000	4120		ug/L		103	80 - 120		
Iron	22000	24000		ug/L		109	80 - 120		
Manganese	1000	1020		ug/L		102	80 - 120		

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCSD 580-233686/24-A**  
**Matrix: Water**  
**Analysis Batch: 233821**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 233686**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4000	4190		ug/L		105	80 - 120	1	20
Iron	22000	24200		ug/L		110	80 - 120	1	20
Manganese	1000	1040		ug/L		104	80 - 120	1	20

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 580-232904/1**  
**Matrix: Water**  
**Analysis Batch: 232904**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			11/21/16 10:03	1

**Lab Sample ID: LCS 580-232904/2**  
**Matrix: Water**  
**Analysis Batch: 232904**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	24.0		mg/L		87	70.6 - 120

**Lab Sample ID: 580-64241-3 DU**  
**Matrix: Water**  
**Analysis Batch: 232904**

**Client Sample ID: MW002R-E3**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	ND		ND		mg/L		NC	20

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID: MB 280-352924/5**  
**Matrix: Water**  
**Analysis Batch: 352924**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			11/23/16 17:21	1

**Lab Sample ID: LCS 280-352924/3**  
**Matrix: Water**  
**Analysis Batch: 352924**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.502	0.469		mg/L		93	80 - 119

**Lab Sample ID: LCSD 280-352924/4**  
**Matrix: Water**  
**Analysis Batch: 352924**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.502	0.487		mg/L		97	80 - 119	4	10

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Lab Sample ID: 580-64241-5 MS**  
**Matrix: Water**  
**Analysis Batch: 352924**

**Client Sample ID: B005R-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.047	J	0.502	0.559		mg/L		102	80 - 119

**Lab Sample ID: 580-64241-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 352924**

**Client Sample ID: B005R-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.047	J	0.502	0.569		mg/L		104	80 - 119	2	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-233300/3**  
**Matrix: Water**  
**Analysis Batch: 233300**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			11/25/16 11:33	1

**Lab Sample ID: LCS 580-233300/4**  
**Matrix: Water**  
**Analysis Batch: 233300**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.51		mg/L		95	85 - 115

**Lab Sample ID: 580-64241-1 MS**  
**Matrix: Water**  
**Analysis Batch: 233300**

**Client Sample ID: MW004-E3**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	3.0	F2 F1	10.0	13.0		mg/L		101	85 - 115

**Lab Sample ID: 580-64241-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 233300**

**Client Sample ID: MW004-E3**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	3.0	F2 F1	10.0	12.5	F2	mg/L		95	85 - 115	127	20

**Lab Sample ID: 580-64241-1 DU**  
**Matrix: Water**  
**Analysis Batch: 233300**

**Client Sample ID: MW004-E3**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	3.0	F2 F1	2.90		mg/L		3	20

**Lab Sample ID: MB 580-233684/3**  
**Matrix: Water**  
**Analysis Batch: 233684**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			11/30/16 16:01	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

Lab Sample ID: LCS 580-233684/4  
Matrix: Water  
Analysis Batch: 233684

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.12		mg/L		91	85 - 115

Lab Sample ID: MB 580-233832/3  
Matrix: Water  
Analysis Batch: 233832

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			12/02/16 15:25	1

Lab Sample ID: LCS 580-233832/4  
Matrix: Water  
Analysis Batch: 233832

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.32		mg/L		93	85 - 115

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

Lab Sample ID: MB 580-233685/3  
Matrix: Water  
Analysis Batch: 233685

Client Sample ID: Method Blank  
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			11/30/16 19:09	1

Lab Sample ID: LCS 580-233685/4  
Matrix: Water  
Analysis Batch: 233685

Client Sample ID: Lab Control Sample  
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.5		mg/L		105	85 - 115

Lab Sample ID: MB 580-234040/3  
Matrix: Water  
Analysis Batch: 234040

Client Sample ID: Method Blank  
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			12/06/16 14:52	1

Lab Sample ID: LCS 580-234040/4  
Matrix: Water  
Analysis Batch: 234040

Client Sample ID: Lab Control Sample  
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.59		mg/L		96	85 - 115

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

**Lab Sample ID: 580-64241-8 MS**  
**Matrix: Water**  
**Analysis Batch: 234040**

**Client Sample ID: MW011-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	60		200	256		mg/L		98	85 - 115

**Lab Sample ID: 580-64241-8 MSD**  
**Matrix: Water**  
**Analysis Batch: 234040**

**Client Sample ID: MW011-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	60		200	245		mg/L		93	85 - 115	4	20

**Lab Sample ID: 580-64241-8 DU**  
**Matrix: Water**  
**Analysis Batch: 234040**

**Client Sample ID: MW011-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	60		58.1		mg/L		3	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Client Sample ID: MW004-E3**

**Date Collected: 11/17/16 10:30**

**Date Received: 11/17/16 14:40**

**Lab Sample ID: 580-64241-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			233226	11/23/16 17:40	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		1	233346	11/28/16 11:50	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	232904	11/21/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		1	233685	11/30/16 19:09	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	233300	11/25/16 11:33	Z1T	TAL SEA

**Client Sample ID: MW001-E3**

**Date Collected: 11/17/16 12:45**

**Date Received: 11/17/16 14:40**

**Lab Sample ID: 580-64241-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			233226	11/23/16 17:40	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		1	233346	11/28/16 12:12	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	232904	11/21/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		20	233685	11/30/16 19:09	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	233300	11/25/16 11:33	Z1T	TAL SEA

**Client Sample ID: MW002R-E3**

**Date Collected: 11/17/16 11:45**

**Date Received: 11/17/16 14:40**

**Lab Sample ID: 580-64241-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			233226	11/23/16 17:40	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		10	233346	11/28/16 12:34	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	232904	11/21/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		1	233685	11/30/16 19:09	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	233300	11/25/16 11:33	Z1T	TAL SEA

**Client Sample ID: MW005R-E3**

**Date Collected: 11/17/16 12:35**

**Date Received: 11/17/16 14:40**

**Lab Sample ID: 580-64241-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			233226	11/23/16 17:40	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		1	233346	11/28/16 12:57	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	232904	11/21/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		2	233685	12/01/16 19:18	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	233300	11/26/16 11:42	Z1T	TAL SEA

TestAmerica Seattle



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Client Sample ID: B005R-E3**

**Lab Sample ID: 580-64241-5**

**Date Collected: 11/17/16 11:00**

**Matrix: Water**

**Date Received: 11/17/16 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			233226	11/23/16 17:40	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		1	233346	11/28/16 13:19	D1R	TAL SEA
Dissolved	Prep	3005A			233686	12/01/16 19:12	PAB	TAL SEA
Dissolved	Analysis	6020A		5	233821	12/02/16 12:29	FCW	TAL SEA
Total Recoverable	Prep	3005A			233686	12/01/16 19:12	PAB	TAL SEA
Total Recoverable	Analysis	6020A		5	233821	12/02/16 12:20	FCW	TAL SEA
Total/NA	Analysis	SM 2540D		1	232904	11/21/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352924	11/23/16 17:21	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		1	233685	11/30/16 19:09	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	233300	11/26/16 11:42	Z1T	TAL SEA

**Client Sample ID: B505R-E3**

**Lab Sample ID: 580-64241-6**

**Date Collected: 11/17/16 11:10**

**Matrix: Water**

**Date Received: 11/17/16 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			233226	11/23/16 17:40	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		1	233346	11/28/16 13:41	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	232904	11/21/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352924	11/23/16 17:21	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		1	233685	11/30/16 19:09	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	233300	11/26/16 11:42	Z1T	TAL SEA

**Client Sample ID: MW008-E3**

**Lab Sample ID: 580-64241-7**

**Date Collected: 11/17/16 11:00**

**Matrix: Water**

**Date Received: 11/17/16 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	232904	11/21/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352924	11/23/16 17:21	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		20	233685	12/01/16 19:18	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		20	233684	12/01/16 19:07	Z1T	TAL SEA

**Client Sample ID: MW011-E3**

**Lab Sample ID: 580-64241-8**

**Date Collected: 11/17/16 12:45**

**Matrix: Water**

**Date Received: 11/17/16 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	232904	11/21/16 10:03	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	352924	11/23/16 17:21	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		20	234040	12/06/16 14:52	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

**Client Sample ID: MW011-E3**

**Lab Sample ID: 580-64241-8**

**Date Collected: 11/17/16 12:45**

**Matrix: Water**

**Date Received: 11/17/16 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 5310B		20	233832	12/02/16 15:25	Z1T	TAL SEA

#### Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

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# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6020A	3005A	Water	Iron
SM 5310B		Water	Dissolved Organic Carbon

## Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-02-17

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-64241-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-64241-1	MW004-E3	Water	11/17/16 10:30	11/17/16 14:40
580-64241-2	MW001-E3	Water	11/17/16 12:45	11/17/16 14:40
580-64241-3	MW002R-E3	Water	11/17/16 11:45	11/17/16 14:40
580-64241-4	MW005R-E3	Water	11/17/16 12:35	11/17/16 14:40
580-64241-5	B005R-E3	Water	11/17/16 11:00	11/17/16 14:40
580-64241-6	B505R-E3	Water	11/17/16 11:10	11/17/16 14:40
580-64241-7	MW008-E3	Water	11/17/16 11:00	11/17/16 14:40
580-64241-8	MW011-E3	Water	11/17/16 12:45	11/17/16 14:40

GSI  
55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

# Chain of Custody Record

Field Sampler(s):  
GSI

**Client Contact**  
Project Name: Parcel 15 - POT  
Project # or PO #: 603.002.014  
Project Manager: Erin Hughes  
Phone #: 971-200-8528  
Report to email: echughes@gsiws.com

**For Lab Use Only:**  
SDG: \_\_\_\_\_  
Custody Seals intact?  
Hand delivered?  
Cooler Temp: \_\_\_\_\_ °C  
Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Laboratory**  
TestAmerica  
Brooks  
**Analysis Requested**  
Brooks Ben Wozniak 206-753-6158  
TestAmerica Rob Greer 253-922-5047

**Analysis Turnaround Time:**  
Standard 21 day TAT on Most Analyses  
Rush 5 day on Dissolved Metals in Porewater

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	Analysis Requested														Sample Specific Notes		
							SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***		Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	
MW004-E3	11/17/16	1030	75	G	W	7	X	X	X	X									X	X	X		
MW001-E3		1245	851			7	X	X		X									X	X	X		
MW002R-E3		1145	1027			7	X	X		X									X	X	X		
MW005R-E3		1235	400			7	X	X		X									X	X	X		
B005R-E3		1100	577			10	X	X	X	X								X	X	X	X	X	
B505R-E3		1100	577			8	X	X	X	X								X	X	X	X	X	
MW008-E3		1100	2110			6	X	X	X	X									X	X			
MW011-E3		1245	2049			6	X	X	X	X									X	X			



580-64241 Chain of Custody

**Possible Hazard Identification:**  
Are samples hazardous?  Yes  No  
If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic

Relinquished by: Peter Perronquin - GSI Date/Time: 11-17-16 1440

Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
Received by: B. Hall B. Gall - SEAT Date/Time: 11,17,16 1440  
Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Special Instructions/QC Requirements**  
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
Please contact Cindy Ryals at 971-200-8531 with any questions.

TB AZ Cooler Cor 5.9 Unc 6.1 TB Cooler SE Cor 8.2 Unc 8.3  
Cooler Dsc/g B/w @Lab Cooler Dsc/g B/w @Lab  
Wet Packs Packing Bubble - Wet Packs Packing Bubble  
Cl. do w/o Cl. do w/o  
Page 23 of 26 12/8/2016

# Chain of Custody Record

<b>Client Information (Sub Contract Lab)</b> Company: TestAmerica Laboratories, Inc. Address: 4955 Yarrow Street, City: Anvada State, Zip: CO, 80002 Phone: 303-736-0100(Tel) 303-431-7171(Fax) Email: Project Name: Parcel 15 - POT Site:		Lab PM: Greer, Robert A E-Mail: robert.greer@testamericainc.com Accreditations Required (See note): State Program - Washington		Carrier Tracking No(s): State of Origin: Washington Page: Page 1 of 1 Job #: 580-64241-1		COC No: 580-42446.1	
Due Date Requested: 12/6/2016 TAT Requested (days):		<b>Analysis Requested</b>		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
PO #: WO #: Project #: SOW#:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) SMA400_S2_D\FIELD_FLTRD Dissolved Sulfide, field-filtered		Total Number of Containers		Special Instructions/Note:	
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wastefl, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers
B005R-E3 (580-64241-5)	11/17/16	11:00 Pacific	Water	Water	X	X	1
B505R-E3 (580-64241-6)	11/17/16	11:10 Pacific	Water	Water	X	X	1
MW008-E3 (580-64241-7)	11/17/16	11:00 Pacific	Water	Water	X	X	1
MW011-E3 (580-64241-8)	11/17/16	12:45 Pacific	Water	Water	X	X	1

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2  
 Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Relinquished by: *Tom Blum* Date: 11/21/16 Company: TA-See  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Custody Seals Intact:  Yes  No  
 Custody Seal No.: \_\_\_\_\_  
 Cooler Temperature(s) °C and Other Remarks: 1.0-0.1 TRS transferred by JT

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months  
 Special Instructions/QC Requirements:



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# Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-64241-1

**Login Number: 64241**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Torres, Terri L**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.		
The cooler's custody seal, if present, is intact.		
Sample custody seals, if present, are intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the containers received and the COC.		
Samples are received within Holding Time (excluding tests with immediate HTs)		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

# Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-64241-1

**Login Number: 64241**  
**List Number: 2**  
**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**  
**List Creation: 11/22/16 03:02 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-64433-1  
Client Project/Site: Parcel 15 POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Erin Carroll Hughes



Authorized for release by:  
12/12/2016 10:25:41 AM

Robert Greer, Project Manager II  
(253)922-2310  
[robert.greer@testamericainc.com](mailto:robert.greer@testamericainc.com)

### LINKS

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results through  
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Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

**Job ID: 580-64433-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-64433-1

#### Receipt

The samples were received on 11/29/2016 12:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.3° C and 5.0° C.

#### GC/MS Semi VOA

Method(s) 8270D SIM: The Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) in preparation batch 580-233576 and analytical batch 580-233782 were analyzed at 5x dilution. Dilution was performed to bring target analytes into instrument calibration range. High spike concentration was due to documented prep error: a soil prep spike solution (with 5x higher concentration) was used instead of the customary water prep spike solution, Data is correctly calculated: WCTPW004A-10-E3 (580-64433-7), (LCS 580-233576/2-A) and (LCSD 580-233576/3-A).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

Method(s) 6010C: The method blank in preparation batch 580-234071 and analytical batch 580-234229 had a detection of Calcium above the method detection limit but below 1/2 the reporting limit.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0: A CCB for the contained Chloride above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the CCB.

Method(s) 300.0: Samples contained large concentrations of chloride. The analyst was forced to dilute the samples to prevent damage to the instrument. The subsequent dilutions may have removed other analytes at lower concentrations. The analyst also tested the samples with strips that activate when there is a presence of Nitrate or Nitrite. The strips appeared to show no concentrations of the analytes: WCTPW001A-10-E3 (580-64433-1), WCTPW001B-10-E3 (580-64433-2), WCTPW002A-10-E3 (580-64433-3), WCTPW002B-10-E3 (580-64433-4), WCTPW003A-10-E3 (580-64433-5), WCTPW003B-10-E3 (580-64433-6), (580-64433-B-1 MS) and (580-64433-B-1 MSD).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

**Client Sample ID: WCTPW001A-10-E3**

**Lab Sample ID: 580-64433-1**

**Date Collected: 11/28/16 20:15**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	190	B	1.1	0.023	mg/L		12/07/16 17:26	12/09/16 11:49	1
Magnesium	570		55	6.7	mg/L		12/07/16 17:26	12/09/16 12:35	50
Potassium	160		3.3	0.15	mg/L		12/07/16 17:26	12/09/16 11:49	1
Sodium	4500		100	28	mg/L		12/07/16 17:26	12/09/16 12:35	50

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	30		4.0	0.76	mg/L			12/02/16 15:25	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	170		4.0	4.0	mg/L			11/30/16 16:00	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND	F1	0.20	0.030	mg/L			11/30/16 09:31	1
Nitrite as N	ND	F1	0.40	0.080	mg/L			11/30/16 09:31	1
Chloride	7000	^	450	20	mg/L			11/30/16 13:46	500
Nitrate as N	ND		0.20	0.020	mg/L			11/30/16 09:31	1
Bromide	36	J	50	6.0	mg/L			11/30/16 10:56	100
Sulfate	1600		120	26	mg/L			11/30/16 10:56	100
Sulfide	ND		0.050	0.0070	mg/L			12/04/16 18:00	1
Dissolved Organic Carbon	12		4.0	0.76	mg/L			12/06/16 14:52	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND	F1	0.10	0.10	mg/L			11/30/16 11:09	1
Alkalinity	340		5.0	5.0	mg/L			11/30/16 14:50	1
Bicarbonate Alkalinity as CaCO3	340		5.0	5.0	mg/L			11/30/16 14:50	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/30/16 14:50	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/30/16 14:50	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

**Client Sample ID: WCTPW001B-10-E3**

**Lab Sample ID: 580-64433-2**

Date Collected: 11/28/16 20:30

Matrix: Water

Date Received: 11/29/16 12:00

### Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	82	B	1.1	0.023	mg/L		12/07/16 17:26	12/09/16 12:16	1
Magnesium	240		1.1	0.13	mg/L		12/07/16 17:26	12/09/16 12:16	1
Potassium	94		3.3	0.15	mg/L		12/07/16 17:26	12/09/16 12:16	1
Sodium	2200		100	28	mg/L		12/07/16 17:26	12/09/16 12:38	50

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14		5.0	1.4	ug/L		12/07/16 17:26	12/09/16 12:37	5

### Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13		5.0	1.4	ug/L		12/07/16 17:26	12/09/16 12:32	5
Iron	6700		200	29	ug/L		12/07/16 17:26	12/09/16 12:32	5
Manganese	810		10	1.8	ug/L		12/07/16 17:26	12/09/16 12:32	5

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	3.9		1.0	0.19	mg/L			12/02/16 15:25	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	67		4.0	4.0	mg/L			11/30/16 16:00	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			11/30/16 11:11	100
Nitrite as N	ND		40	8.0	mg/L			11/30/16 11:11	100
Chloride	4900	^	90	4.0	mg/L			11/30/16 11:11	100
Nitrate as N	ND		20	2.0	mg/L			11/30/16 11:11	100
Bromide	ND		50	6.0	mg/L			11/30/16 11:11	100
Sulfate	530		120	26	mg/L			11/30/16 11:11	100
Sulfide	ND		0.050	0.0070	mg/L			12/04/16 18:00	1
Dissolved Organic Carbon	3.8		1.0	0.19	mg/L			12/06/16 14:52	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/30/16 11:09	1
Alkalinity	110		5.0	5.0	mg/L			11/30/16 14:50	1
Bicarbonate Alkalinity as CaCO3	110		5.0	5.0	mg/L			11/30/16 14:50	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/30/16 14:50	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/30/16 14:50	1

TestAmerica Seattle

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

**Client Sample ID: WCTPW002A-10-E3**

**Lab Sample ID: 580-64433-3**

**Date Collected: 11/28/16 21:00**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

### Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	220	B	1.1	0.023	mg/L		12/07/16 17:26	12/09/16 12:19	1
Magnesium	700		55	6.7	mg/L		12/07/16 17:26	12/09/16 12:41	50
Potassium	250		3.3	0.15	mg/L		12/07/16 17:26	12/09/16 12:19	1
Sodium	6200		100	28	mg/L		12/07/16 17:26	12/09/16 12:41	50

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.7		1.0	0.19	mg/L			12/02/16 15:25	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	28		2.0	2.0	mg/L			11/30/16 16:00	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			11/30/16 11:27	100
Nitrite as N	ND		40	8.0	mg/L			11/30/16 11:27	100
Chloride	9900	^	450	20	mg/L			11/30/16 14:01	500
Nitrate as N	ND		20	2.0	mg/L			11/30/16 11:27	100
Bromide	73		50	6.0	mg/L			11/30/16 11:27	100
Sulfate	3300		120	26	mg/L			11/30/16 11:27	100
Sulfide	ND		0.050	0.0070	mg/L			12/04/16 18:00	1
Dissolved Organic Carbon	1.6		1.0	0.19	mg/L			12/06/16 14:52	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/30/16 11:09	1
Alkalinity	88		5.0	5.0	mg/L			11/30/16 14:50	1
Bicarbonate Alkalinity as CaCO3	88		5.0	5.0	mg/L			11/30/16 14:50	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/30/16 14:50	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/30/16 14:50	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

**Client Sample ID: WCTPW002B-10-E3**

**Lab Sample ID: 580-64433-4**

**Date Collected: 11/28/16 21:30**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	160	B	1.1	0.023	mg/L		12/07/16 17:26	12/09/16 12:23	1
Magnesium	500		55	6.7	mg/L		12/07/16 17:26	12/09/16 12:45	50
Potassium	170		3.3	0.15	mg/L		12/07/16 17:26	12/09/16 12:23	1
Sodium	4400		100	28	mg/L		12/07/16 17:26	12/09/16 12:45	50

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	3.4		1.0	0.19	mg/L			12/02/16 15:25	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	31		2.0	2.0	mg/L			11/30/16 16:00	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			11/30/16 11:42	100
Nitrite as N	ND		40	8.0	mg/L			11/30/16 11:42	100
Chloride	7700	^	450	20	mg/L			11/30/16 14:16	500
Nitrate as N	ND		20	2.0	mg/L			11/30/16 11:42	100
Bromide	36	J	50	6.0	mg/L			11/30/16 11:42	100
Sulfate	1400		120	26	mg/L			11/30/16 11:42	100
Sulfide	ND		0.050	0.0070	mg/L			12/04/16 18:00	1
Dissolved Organic Carbon	3.2		1.0	0.19	mg/L			12/06/16 14:52	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/30/16 11:09	1
Alkalinity	91		5.0	5.0	mg/L			11/30/16 14:50	1
Bicarbonate Alkalinity as CaCO3	91		5.0	5.0	mg/L			11/30/16 14:50	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/30/16 14:50	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/30/16 14:50	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

**Client Sample ID: WCTPW003A-10-E3**

**Lab Sample ID: 580-64433-5**

**Date Collected: 11/28/16 22:00**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	210	B	1.1	0.023	mg/L		12/07/16 17:26	12/09/16 12:26	1
Magnesium	640		55	6.7	mg/L		12/07/16 17:26	12/09/16 12:48	50
Potassium	240		3.3	0.15	mg/L		12/07/16 17:26	12/09/16 12:26	1
Sodium	6100		100	28	mg/L		12/07/16 17:26	12/09/16 12:48	50

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	3.4		1.0	0.19	mg/L			12/02/16 15:25	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	39		2.0	2.0	mg/L			11/30/16 16:00	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			11/30/16 11:58	100
Nitrite as N	ND		40	8.0	mg/L			11/30/16 11:58	100
Chloride	9300	^	450	20	mg/L			11/30/16 14:32	500
Nitrate as N	ND		20	2.0	mg/L			11/30/16 11:58	100
Bromide	40	J	50	6.0	mg/L			11/30/16 11:58	100
Sulfate	1600		120	26	mg/L			11/30/16 11:58	100
Sulfide	ND		0.050	0.0070	mg/L			12/04/16 18:00	1
Dissolved Organic Carbon	3.2		2.0	0.38	mg/L			12/06/16 14:52	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/30/16 11:09	1
Alkalinity	97		5.0	5.0	mg/L			11/30/16 14:50	1
Bicarbonate Alkalinity as CaCO3	97		5.0	5.0	mg/L			11/30/16 14:50	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/30/16 14:50	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/30/16 14:50	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

**Client Sample ID: WCTPW003B-10-E3**

**Lab Sample ID: 580-64433-6**

**Date Collected: 11/28/16 22:30**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	90	B	1.1	0.023	mg/L		12/07/16 17:26	12/09/16 12:30	1
Magnesium	210		1.1	0.13	mg/L		12/07/16 17:26	12/09/16 12:30	1
Potassium	87		3.3	0.15	mg/L		12/07/16 17:26	12/09/16 12:30	1
Sodium	1800		100	28	mg/L		12/07/16 17:26	12/09/16 12:51	50

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	10		1.0	0.19	mg/L			12/02/16 15:25	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	100		4.0	4.0	mg/L			11/30/16 16:00	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			11/30/16 12:13	100
Nitrite as N	ND		40	8.0	mg/L			11/30/16 12:13	100
Chloride	3800	^	90	4.0	mg/L			11/30/16 12:13	100
Nitrate as N	ND		20	2.0	mg/L			11/30/16 12:13	100
Bromide	ND		50	6.0	mg/L			11/30/16 12:13	100
Sulfate	380		120	26	mg/L			11/30/16 12:13	100
Sulfide	ND		0.050	0.0070	mg/L			12/04/16 18:00	1
Dissolved Organic Carbon	7.4		1.0	0.19	mg/L			12/06/16 14:52	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/30/16 11:09	1
Alkalinity	150		5.0	5.0	mg/L			11/30/16 14:50	1
Bicarbonate Alkalinity as CaCO3	150		5.0	5.0	mg/L			11/30/16 14:50	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/30/16 14:50	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			11/30/16 14:50	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

**Client Sample ID: WCTPW004A-10-E3**

**Lab Sample ID: 580-64433-7**

**Date Collected: 11/28/16 23:00**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.089	0.089	ug/L		12/01/16 11:46	12/03/16 16:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	81		44 - 125				12/01/16 11:46	12/03/16 16:20	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>9.2</b>		1.0	0.19	mg/L			12/02/16 15:25	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>53</b>		4.0	4.0	mg/L			11/30/16 16:00	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Dissolved Organic Carbon</b>	<b>4.5</b>		2.0	0.38	mg/L			12/06/16 14:52	2

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-233576/1-A**  
**Matrix: Water**  
**Analysis Batch: 233782**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 233576**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.080	0.080	ug/L		11/30/16 13:46	12/03/16 13:45	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	69		44 - 125				11/30/16 13:46	12/03/16 13:45	1

**Lab Sample ID: LCS 580-233576/2-A**  
**Matrix: Water**  
**Analysis Batch: 233782**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 233576**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Pentachlorophenol	40.0	39.8		ug/L		100	30 - 149		
Surrogate	%Recovery	LCS Qualifier	Limits						
2,4,6-Tribromophenol	93		44 - 125						

**Lab Sample ID: LCSD 580-233576/3-A**  
**Matrix: Water**  
**Analysis Batch: 233782**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 233576**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	40.0	39.9		ug/L		100	30 - 149	0	20
Surrogate	%Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	85		44 - 125						

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-234071/16-A**  
**Matrix: Water**  
**Analysis Batch: 234229**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 234071**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.0272	J	1.1	0.023	mg/L		12/07/16 17:26	12/09/16 11:40	1
Magnesium	ND		1.1	0.13	mg/L		12/07/16 17:26	12/09/16 11:40	1
Potassium	ND		3.3	0.15	mg/L		12/07/16 17:26	12/09/16 11:40	1
Sodium	ND		2.0	0.55	mg/L		12/07/16 17:26	12/09/16 11:40	1

**Lab Sample ID: LCS 580-234071/17-A**  
**Matrix: Water**  
**Analysis Batch: 234229**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 234071**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Calcium	20.0	20.3		mg/L		101	80 - 120		
Magnesium	20.0	20.4		mg/L		102	80 - 120		
Potassium	20.0	20.3		mg/L		101	80 - 120		
Sodium	20.0	20.3		mg/L		102	80 - 120		

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

## Method: 6010C - Metals (ICP) (Continued)

**Lab Sample ID: LCSD 580-234071/18-A**  
**Matrix: Water**  
**Analysis Batch: 234229**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 234071**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Calcium	20.0	20.5		mg/L		103	80 - 120	1	20
Magnesium	20.0	20.5		mg/L		103	80 - 120	1	20
Potassium	20.0	20.7		mg/L		103	80 - 120	2	20
Sodium	20.0	20.7		mg/L		104	80 - 120	2	20

**Lab Sample ID: 580-64433-1 MS**  
**Matrix: Water**  
**Analysis Batch: 234229**

**Client Sample ID: WCTPW001A-10-E3**  
**Prep Type: Dissolved**  
**Prep Batch: 234071**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Calcium	190	B	20.0	214	4	mg/L		101	75 - 125		
Magnesium	570		20.0	589	4	mg/L		103	75 - 125		
Potassium	160		20.0	193	4	mg/L		142	75 - 125		
Sodium	2600	E	20.0	2080	E 4	mg/L		-2820	75 - 125		

**Lab Sample ID: 580-64433-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 234229**

**Client Sample ID: WCTPW001A-10-E3**  
**Prep Type: Dissolved**  
**Prep Batch: 234071**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Calcium	190	B	20.0	213	4	mg/L		99	75 - 125	0	20
Magnesium	570		20.0	591	4	mg/L		111	75 - 125	0	20
Potassium	160		20.0	196	4	mg/L		157	75 - 125	1	20
Sodium	2600	E	20.0	2030	E 4	mg/L		-3080	75 - 125	3	20

**Lab Sample ID: 580-64433-1 DU**  
**Matrix: Water**  
**Analysis Batch: 234229**

**Client Sample ID: WCTPW001A-10-E3**  
**Prep Type: Dissolved**  
**Prep Batch: 234071**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Calcium	190	B	195		mg/L		0.5	20
Magnesium	570		575		mg/L		1	20
Potassium	160		170		mg/L		3	20
Sodium	2600	E	2200	E	mg/L		18	20

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 580-234071/16-A**  
**Matrix: Water**  
**Analysis Batch: 234216**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 234071**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.27	ug/L		12/07/16 17:26	12/09/16 11:29	1
Iron	ND		40	5.8	ug/L		12/07/16 17:26	12/09/16 11:29	1
Manganese	ND		2.0	0.35	ug/L		12/07/16 17:26	12/09/16 11:29	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 580-234071/17-A**  
**Matrix: Water**  
**Analysis Batch: 234216**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 234071**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	4000	3970		ug/L		99	80 - 120
Iron	22000	22700		ug/L		103	80 - 120
Manganese	1000	981		ug/L		98	80 - 120

**Lab Sample ID: LCSD 580-234071/18-A**  
**Matrix: Water**  
**Analysis Batch: 234216**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 234071**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	4000	3960		ug/L		99	80 - 120	0	20
Iron	22000	22700		ug/L		103	80 - 120	0	20
Manganese	1000	994		ug/L		99	80 - 120	1	20

**Lab Sample ID: 580-64433-G-1-C MS**  
**Matrix: Water**  
**Analysis Batch: 234216**

**Client Sample ID: 580-64433-G-1-C MS**  
**Prep Type: Dissolved**  
**Prep Batch: 234071**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic	15		4000	4140		ug/L		103	80 - 120
Iron	30000		22000	53100		ug/L		107	80 - 120
Manganese	1000		1000	2080		ug/L		103	80 - 120

**Lab Sample ID: 580-64433-G-1-D MSD**  
**Matrix: Water**  
**Analysis Batch: 234216**

**Client Sample ID: 580-64433-G-1-D MSD**  
**Prep Type: Dissolved**  
**Prep Batch: 234071**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	15		4000	4070		ug/L		101	80 - 120	2	20
Iron	30000		22000	52700		ug/L		105	80 - 120	1	20
Manganese	1000		1000	2050		ug/L		100	80 - 120	2	20

**Lab Sample ID: 580-64433-G-1-B DU**  
**Matrix: Water**  
**Analysis Batch: 234216**

**Client Sample ID: 580-64433-G-1-B DU**  
**Prep Type: Dissolved**  
**Prep Batch: 234071**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Arsenic	15		14.9		ug/L		1	20
Iron	30000		29700		ug/L		0.4	20
Manganese	1000		1050		ug/L		0	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 580-233687/3**  
**Matrix: Water**  
**Analysis Batch: 233687**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			11/30/16 08:45	1
Chloride	ND		0.90	0.040	mg/L			11/30/16 08:45	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: MB 580-233687/3**  
**Matrix: Water**  
**Analysis Batch: 233687**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.50	0.060	mg/L			11/30/16 08:45	1
Sulfate	ND		1.2	0.26	mg/L			11/30/16 08:45	1

**Lab Sample ID: LCS 580-233687/4**  
**Matrix: Water**  
**Analysis Batch: 233687**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	4.95		mg/L		99	90 - 110
Chloride	50.0	49.9		mg/L		100	90 - 110
Bromide	10.0	10.0		mg/L		100	90 - 110
Sulfate	50.0	49.2		mg/L		98	90 - 110

**Lab Sample ID: LCSD 580-233687/5**  
**Matrix: Water**  
**Analysis Batch: 233687**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	4.97		mg/L		99	90 - 110	0	15
Chloride	50.0	50.0		mg/L		100	90 - 110	0	15
Bromide	10.0	10.0		mg/L		100	90 - 110	0	15
Sulfate	50.0	49.4		mg/L		99	90 - 110	0	15

**Lab Sample ID: MB 580-233689/3**  
**Matrix: Water**  
**Analysis Batch: 233689**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.080	mg/L			11/30/16 08:45	1
Nitrate as N	ND		0.20	0.020	mg/L			11/30/16 08:45	1

**Lab Sample ID: LCS 580-233689/4**  
**Matrix: Water**  
**Analysis Batch: 233689**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	5.00	4.97		mg/L		99	90 - 110
Nitrate as N	5.00	4.90		mg/L		98	90 - 110

**Lab Sample ID: LCSD 580-233689/5**  
**Matrix: Water**  
**Analysis Batch: 233689**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	5.00	4.99		mg/L		100	90 - 110	0	15
Nitrate as N	5.00	4.92		mg/L		98	90 - 110	0	15

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 580-64433-1 MS**  
**Matrix: Water**  
**Analysis Batch: 233687**

**Client Sample ID: WCTPW001A-10-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	ND	F1	5.00	ND	F1	mg/L		0	90 - 110
Chloride	7000	^	50.0	6720	4	mg/L		-503	90 - 110
Bromide	ND	F1	10.0	ND	F1	mg/L		0	90 - 110
Sulfate	ND	F1	50.0	ND	F1	mg/L		0	90 - 110

**Lab Sample ID: 580-64433-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 233687**

**Client Sample ID: WCTPW001A-10-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	ND	F1	5.00	ND	F1	mg/L		0	90 - 110	NC	15
Chloride	7000	^	50.0	6740	4	mg/L		-454	90 - 110	0	15
Bromide	ND	F1	10.0	ND	F1	mg/L		0	90 - 110	NC	15
Sulfate	ND	F1	50.0	ND	F1	mg/L		0	90 - 110	NC	15

**Lab Sample ID: 580-64433-1 MS**  
**Matrix: Water**  
**Analysis Batch: 233689**

**Client Sample ID: WCTPW001A-10-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	ND	F1	5.00	ND	F1	mg/L		0	90 - 110
Nitrate as N	ND		5.00	5.03		mg/L		101	90 - 110

**Lab Sample ID: 580-64433-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 233689**

**Client Sample ID: WCTPW001A-10-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	ND	F1	5.00	ND	F1	mg/L		0	90 - 110	NC	15
Nitrate as N	ND		5.00	4.95		mg/L		99	90 - 110	2	15

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID: MB 580-233559/1**  
**Matrix: Water**  
**Analysis Batch: 233559**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			11/30/16 11:09	1

**Lab Sample ID: LCS 580-233559/2**  
**Matrix: Water**  
**Analysis Batch: 233559**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.91		mg/L		95	90 - 110

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

## Method: 365.1 - Phosphorus, Ortho (Continued)

Lab Sample ID: 580-64433-1 MS

Matrix: Water

Analysis Batch: 233559

Client Sample ID: WCTPW001A-10-E3

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	ND	F1	2.00	1.20	F1	mg/L		60	80 - 120

Lab Sample ID: 580-64433-1 MSD

Matrix: Water

Analysis Batch: 233559

Client Sample ID: WCTPW001A-10-E3

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	ND	F1	2.00	1.26	F1	mg/L		63	80 - 120	4	20

Lab Sample ID: 580-64433-1 DU

Matrix: Water

Analysis Batch: 233559

Client Sample ID: WCTPW001A-10-E3

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
ortho-Phosphate	ND	F1	ND		mg/L		NC	20

## Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 580-233582/2

Matrix: Water

Analysis Batch: 233582

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	99.1		mg/L		99	85 - 115

Lab Sample ID: 580-64433-1 DU

Matrix: Water

Analysis Batch: 233582

Client Sample ID: WCTPW001A-10-E3

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	340		331		mg/L		3	17
Bicarbonate Alkalinity as CaCO3	340		331		mg/L		3	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Hydroxide Alkalinity as CaCO3	ND		ND		mg/L		NC	20

## Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 580-233593/1

Matrix: Water

Analysis Batch: 233593

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0 mg/L			11/30/16 16:00	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

## Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

**Lab Sample ID: LCS 580-233593/2**  
**Matrix: Water**  
**Analysis Batch: 233593**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	28.8		mg/L		104	70.6 - 120

**Lab Sample ID: 580-64433-1 DU**  
**Matrix: Water**  
**Analysis Batch: 233593**

**Client Sample ID: WCTPW001A-10-E3**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	170		171		mg/L		0.2	20

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID: MB 280-354170/5**  
**Matrix: Water**  
**Analysis Batch: 354170**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			12/04/16 18:00	1

**Lab Sample ID: LCS 280-354170/3**  
**Matrix: Water**  
**Analysis Batch: 354170**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.476	0.500		mg/L		105	80 - 119

**Lab Sample ID: LCSD 280-354170/4**  
**Matrix: Water**  
**Analysis Batch: 354170**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.476	0.503		mg/L		106	80 - 119	1	10

**Lab Sample ID: 580-64433-1 MS**  
**Matrix: Water**  
**Analysis Batch: 354170**

**Client Sample ID: WCTPW001A-10-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND		0.476	0.381		mg/L		80	80 - 119

**Lab Sample ID: 580-64433-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 354170**

**Client Sample ID: WCTPW001A-10-E3**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND		0.476	0.393		mg/L		82	80 - 119	3	10

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

## Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-233832/3  
Matrix: Water  
Analysis Batch: 233832

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			12/02/16 15:25	1

Lab Sample ID: LCS 580-233832/4  
Matrix: Water  
Analysis Batch: 233832

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.32		mg/L		93	85 - 115

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

Lab Sample ID: MB 580-234040/3  
Matrix: Water  
Analysis Batch: 234040

Client Sample ID: Method Blank  
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			12/06/16 14:52	1

Lab Sample ID: LCS 580-234040/4  
Matrix: Water  
Analysis Batch: 234040

Client Sample ID: Lab Control Sample  
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.59		mg/L		96	85 - 115

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

**Client Sample ID: WCTPW001A-10-E3**

**Lab Sample ID: 580-64433-1**

**Date Collected: 11/28/16 20:15**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Dissolved	Analysis	6010C		1	234229	12/09/16 11:49	HJM	TAL SEA
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Dissolved	Analysis	6010C		50	234229	12/09/16 12:35	HJM	TAL SEA
Dissolved	Analysis	300.0		1	233687	11/30/16 09:31	RSB	TAL SEA
Dissolved	Analysis	300.0		1	233689	11/30/16 09:31	RSB	TAL SEA
Dissolved	Analysis	300.0		100	233687	11/30/16 10:56	RSB	TAL SEA
Dissolved	Analysis	300.0		500	233687	11/30/16 13:46	RSB	TAL SEA
Dissolved	Analysis	365.1		1	233559	11/30/16 11:09	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	233582	11/30/16 14:50	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	233593	11/30/16 16:00	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	354170	12/04/16 18:00	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		4	234040	12/06/16 14:52	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	233832	12/02/16 15:25	Z1T	TAL SEA

**Client Sample ID: WCTPW001B-10-E3**

**Lab Sample ID: 580-64433-2**

**Date Collected: 11/28/16 20:30**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Dissolved	Analysis	6010C		1	234229	12/09/16 12:16	HJM	TAL SEA
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Dissolved	Analysis	6010C		50	234229	12/09/16 12:38	HJM	TAL SEA
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Dissolved	Analysis	6020A		5	234216	12/09/16 12:32	FCW	TAL SEA
Total Recoverable	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Total Recoverable	Analysis	6020A		5	234216	12/09/16 12:37	FCW	TAL SEA
Dissolved	Analysis	300.0		100	233687	11/30/16 11:11	RSB	TAL SEA
Dissolved	Analysis	300.0		100	233689	11/30/16 11:11	RSB	TAL SEA
Dissolved	Analysis	365.1		1	233559	11/30/16 11:09	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	233582	11/30/16 14:50	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	233593	11/30/16 16:00	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	354170	12/04/16 18:00	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		1	234040	12/06/16 14:52	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	233832	12/02/16 15:25	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

**Client Sample ID: WCTPW002A-10-E3**

**Lab Sample ID: 580-64433-3**

**Date Collected: 11/28/16 21:00**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Dissolved	Analysis	6010C		1	234229	12/09/16 12:19	HJM	TAL SEA
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Dissolved	Analysis	6010C		50	234229	12/09/16 12:41	HJM	TAL SEA
Dissolved	Analysis	300.0		100	233687	11/30/16 11:27	RSB	TAL SEA
Dissolved	Analysis	300.0		100	233689	11/30/16 11:27	RSB	TAL SEA
Dissolved	Analysis	300.0		500	233687	11/30/16 14:01	RSB	TAL SEA
Dissolved	Analysis	365.1		1	233559	11/30/16 11:09	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	233582	11/30/16 14:50	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	233593	11/30/16 16:00	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	354170	12/04/16 18:00	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		1	234040	12/06/16 14:52	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	233832	12/02/16 15:25	Z1T	TAL SEA

**Client Sample ID: WCTPW002B-10-E3**

**Lab Sample ID: 580-64433-4**

**Date Collected: 11/28/16 21:30**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Dissolved	Analysis	6010C		1	234229	12/09/16 12:23	HJM	TAL SEA
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Dissolved	Analysis	6010C		50	234229	12/09/16 12:45	HJM	TAL SEA
Dissolved	Analysis	300.0		100	233687	11/30/16 11:42	RSB	TAL SEA
Dissolved	Analysis	300.0		100	233689	11/30/16 11:42	RSB	TAL SEA
Dissolved	Analysis	300.0		500	233687	11/30/16 14:16	RSB	TAL SEA
Dissolved	Analysis	365.1		1	233559	11/30/16 11:09	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	233582	11/30/16 14:50	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	233593	11/30/16 16:00	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	354170	12/04/16 18:00	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		1	234040	12/06/16 14:52	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	233832	12/02/16 15:25	Z1T	TAL SEA

**Client Sample ID: WCTPW003A-10-E3**

**Lab Sample ID: 580-64433-5**

**Date Collected: 11/28/16 22:00**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Dissolved	Analysis	6010C		1	234229	12/09/16 12:26	HJM	TAL SEA
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

**Client Sample ID: WCTPW003A-10-E3**

**Lab Sample ID: 580-64433-5**

**Date Collected: 11/28/16 22:00**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6010C		50	234229	12/09/16 12:48	HJM	TAL SEA
Dissolved	Analysis	300.0		100	233687	11/30/16 11:58	RSB	TAL SEA
Dissolved	Analysis	300.0		100	233689	11/30/16 11:58	RSB	TAL SEA
Dissolved	Analysis	300.0		500	233687	11/30/16 14:32	RSB	TAL SEA
Dissolved	Analysis	365.1		1	233559	11/30/16 11:09	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	233582	11/30/16 14:50	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	233593	11/30/16 16:00	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	354170	12/04/16 18:00	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		2	234040	12/06/16 14:52	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	233832	12/02/16 15:25	Z1T	TAL SEA

**Client Sample ID: WCTPW003B-10-E3**

**Lab Sample ID: 580-64433-6**

**Date Collected: 11/28/16 22:30**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Dissolved	Analysis	6010C		1	234229	12/09/16 12:30	HJM	TAL SEA
Dissolved	Prep	3005A			234071	12/07/16 17:26	PAB	TAL SEA
Dissolved	Analysis	6010C		50	234229	12/09/16 12:51	HJM	TAL SEA
Dissolved	Analysis	300.0		100	233687	11/30/16 12:13	RSB	TAL SEA
Dissolved	Analysis	300.0		100	233689	11/30/16 12:13	RSB	TAL SEA
Dissolved	Analysis	365.1		1	233559	11/30/16 11:09	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	233582	11/30/16 14:50	L1I	TAL SEA
Total/NA	Analysis	SM 2540D		1	233593	11/30/16 16:00	L1I	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	354170	12/04/16 18:00	NJF	TAL DEN
Dissolved	Analysis	SM 5310B		1	234040	12/06/16 14:52	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	233832	12/02/16 15:25	Z1T	TAL SEA

**Client Sample ID: WCTPW004A-10-E3**

**Lab Sample ID: 580-64433-7**

**Date Collected: 11/28/16 23:00**

**Matrix: Water**

**Date Received: 11/29/16 12:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			233576	12/01/16 11:46	DSO	TAL SEA
Total/NA	Analysis	8270D SIM		1	233782	12/03/16 16:20	ERB	TAL SEA
Total/NA	Analysis	SM 2540D		1	233593	11/30/16 16:00	L1I	TAL SEA
Dissolved	Analysis	SM 5310B		2	234040	12/06/16 14:52	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	233832	12/02/16 15:25	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

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# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6020A	3005A	Water	Iron
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 5310B		Water	Dissolved Organic Carbon

## Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-02-17



# Sample Summary


Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-64433-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-64433-1	WCTPW001A-10-E3	Water	11/28/16 20:15	11/29/16 12:00
580-64433-2	WCTPW001B-10-E3	Water	11/28/16 20:30	11/29/16 12:00
580-64433-3	WCTPW002A-10-E3	Water	11/28/16 21:00	11/29/16 12:00
580-64433-4	WCTPW002B-10-E3	Water	11/28/16 21:30	11/29/16 12:00
580-64433-5	WCTPW003A-10-E3	Water	11/28/16 22:00	11/29/16 12:00
580-64433-6	WCTPW003B-10-E3	Water	11/28/16 22:30	11/29/16 12:00
580-64433-7	WCTPW004A-10-E3	Water	11/28/16 23:00	11/29/16 12:00

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- 9
- 10
- 11

Loc: 580  
64433

 55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

Field Sampler(s):  
*ESI*

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>										<b>Lab PM</b>				
Project Name: Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>					<b>Brooks</b>					Brooks Ben Wozniak 206-753-6158				
Project # or PO #: 603.002.014	Custody Seals intact?	<b>Analysis Requested</b>														
Project Manager: Erin Hughes	Hand delivered?	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III/As(V)*)
Phone #: 971-200-8528	Cooler Temp: _____ °C	Sample Specific Notes														
Report to email: echughes@gsiws.com	Therm ID No.: _____ Therm Exp. _____															
<b>Analysis Turnaround Time:</b>	Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater															

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III/As(V)*)	
WCTPW001A-10-E3	11/28/16	2015	12574	G	U	12	X	X	X	X	X	X	X	X	X				X	X	X	
WCTPW001B-10-E3	11/28	2030	11584			12	X	X	X	X	X	X	X	X	X	X	X		X	X	X	
WCTPW002A-10-E3	11/28	2100	21881			12	X	X	X	X	X	X	X	X	X				X	X	X	
WCTPW002B-10-E3	11/28	2130	28955			12	X	X	X	X	X	X	X	X	X				X	X	X	
WCTPW003A-10-E3	11/28	2200	25965			12	X	X	X	X	X	X	X	X	X				X	X	X	
WCTPW003B-10-E3	11/28	2230	8419			12	X	X	X	X	X	X	X	X	X				X	X	X	
WCTPW004A-10-E3	11/28	2300	1694			7	X	X		X								X	X	X		

TB Cooler IR2 Cor 5.0 Unc 5.1 TB A2 Cooler Cor 2.3 Unc 5.1  
Cooler Dsc Lg Blu/w @Lab Cooler Dsc Lg Blu/w @Lab  
Wet/Packs Packing bub Wet/Packs Packing bub  
clidro



580-64433 Chain of Custody

**Possible Hazard Identification:**  
Are samples hazardous?  No  
If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
select hazard(s):  
Relinquished by: *[Signature]* Date/Time: 11/29/16 1200  
Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_  
Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
Received by: *[Signature]* Date/Time: 11/29/16 1200  
Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Special Instructions/QC Requirements**  
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
Please contact Cindy Ryals at 971-200-8531 with any questions.

*As speciation to be run if concentration > 36 ug/L*

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler: Greer, Robert A	Lab PM: Robert A Greer	Carrier Tracking Note(s):	COC No: 580-42679-1	
Client Contact: Shipping/Receiving		Phone: robert.greer@testamericainc.com	E-Mail: robert.greer@testamericainc.com	State of Origin: Washington	Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 580-64433-1	Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsH2O2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MC/AA W - pH 4-5 Z - other (specify)	
Address: 4955 Yarrow Street, Anvada, CO, 80002		Due Date Requested: 12/15/2016		<b>Analysis Requested</b>		
Phone: 303-736-0100(Tel) 303-431-7171(Fax)		TAT Requested (days):		Total Number of containers		
Email:		FO #:		Field Filtered Sample (Yes or No)		
Project Name: Parcel 15 POT		WO #:		Perform MS/MSD (Yes or No)		
Site: S5009703		Project #:		Filtered		
		SSOW#:		SM4500_S2 D/FIELD_FLTRD Dissolved Sulfide, field		
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, ST=Tissue, A=Air)	Preservation Code:	Special Instructions/Note:
WCTPW001A-10-E3 (580-64433-1)	11/28/16	20:15 Pacific		Water		1
WCTPW001B-10-E3 (580-64433-2)	11/28/16	20:30 Pacific		Water		1
WCTPW002A-10-E3 (580-64433-3)	11/28/16	21:00 Pacific		Water		1
WCTPW002B-10-E3 (580-64433-4)	11/28/16	21:30 Pacific		Water		1
WCTPW003A-10-E3 (580-64433-5)	11/28/16	22:00 Pacific		Water		1
WCTPW003B-10-E3 (580-64433-6)	11/28/16	22:30 Pacific		Water		1

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis of matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: B. Hall	11.30.16	1455	SEAATA
Relinquished by:	Date/Time:	Received by: Robert A Greer	Date/Time: 12-2-16 950
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.: 1.8 FRH 5 - 0.2 Transfer RP 12-2-16		



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-64433-1

**Login Number: 64433**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-64433-1

**Login Number: 64433**  
**List Number: 2**  
**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**  
**List Creation: 12/02/16 01:47 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# **Appendix C.4: Event 4 - Laboratory Reports and Chain of Custody Forms**



18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • info@brooksapplied.com

April 7, 2017

GSI Water Solutions, Inc.  
ATTN: Erin Carroll Hughes  
55 SW Yamhill St. Suite 300  
Portland OR 97204  
cryals@gsiws.com

RE: Project GSI-PR1601a Waters

Client Project: Parcel 15 – POT (603.002.014)

Ms. Carroll Hughes,

On February 8, 2017, Brooks Applied Labs (BAL) received eight (8) aqueous samples. One (1) additional sample was received on March 28, 2017. All samples were logged-in for the analyses of dissolved arsenic (As), dissolved iron (Fe), dissolved manganese (Mn), and total recoverable As, as per the chain-of-custody (COC) forms. All samples requiring filtration were field-filtered by the client prior to reception at BAL. All samples were received and stored according to BAL SOPs and EPA methodology.

It must be noted that on March 23, 2017 BAL identified that the dissolved and total recoverable metals fractions for the sample identified as WCTSW001B-E4 had been switched in the field; specifically, the bottle labeled as field-filtered contained black precipitate, whereas the bottle labeled as unfiltered contained no solids. The client was notified of this finding on March 23<sup>rd</sup>, and it was decided to switch the sample labels for these two bottles and re-prepare them for the requested analytes. The results presented within this report for WCTSW001B-E4 reflect the corrected sample labels.

#### **Dissolved Metals Quantitation by ICP-QQQ-MS**

All aqueous samples for dissolved metals were directly analyzed for As, Fe, and Mn by inductively coupled plasma triple quadrupole mass spectrometry (ICP-QQQ-MS). The ICP-QQQ-MS determinative method uses advanced interference removal techniques to ensure accuracy of the sample results. For more information, please visit the *Interference Reduction Technology* section on our website, [brooksapplied.com](http://brooksapplied.com).

#### **Batch B170644**

The RPD associated with the matrix duplicate (MD) B170644-DUP1 was above the control limit of 20% for arsenic (25%). This duplicate set met secondary criteria, meaning that the As concentrations of the native sample and matrix duplicate were less than five times the associated method reporting limit (MRL) and the absolute difference between the two replicates was less than the MRL. Since greater variability is expected at concentrations near the MRL, the elevated RPD is identified as an inherent limitation of any quantitative analysis and does not impact the validity of the reported results; consequently, no corrective action or qualification of the data was required. The acceptable RPD of 1% obtained for arsenic in the matrix spike duplicate set (B170644-MS1 and B170644-MSD1) instead demonstrates the precision of the analyses for this analyte.

#### **Total Recoverable Metals Quantitation by ICP-QQQ-MS**

All aqueous samples for total recoverable metals were digested on a hotblock apparatus with aliquots of with nitric and hydrochloric acids. The resulting digests were analyzed for As via ICP-QQQ-MS.

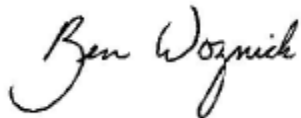
In instances where the matrix spike/matrix spike duplicate (MS/MSD) sets were spiked at a concentration less than 25% of the native sample result, the recoveries were not reported (**NR**) and the MSD RPD is not calculated (**N/C**), as they are not valid indicators of data quality. In such instances, the recoveries of the laboratory blank spike (BS) and/or standard reference material (SRM) demonstrate the accuracy of the applied methods.

All results were *not* method blank corrected, as described in the calculations section of the relevant BAL SOPs, and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

All data was reported without qualification, aside from concentration qualifiers. With the exceptions noted above, all associated quality control results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information, please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,

A handwritten signature in black ink that reads "Ben Wozniak". The signature is written in a cursive, flowing style.

Ben Wozniak  
Project Manager  
ben@brooksapplied.com





## Report Information

### Laboratory Accreditation

BAL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BAL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksapplied.com/resources/certificates-permits/>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>AR</b>	as received	<b>MS</b>	matrix spike
<b>BAL</b>	Brooks Applied Labs	<b>MSD</b>	matrix spike duplicate
<b>BLK</b>	method blank	<b>ND</b>	non-detect
<b>BS</b>	blank spike	<b>NR</b>	non-reportable
<b>CAL</b>	calibration standard	<b>N/C</b>	not calculated
<b>CCB</b>	continuing calibration blank	<b>PS</b>	post preparation spike
<b>CCV</b>	continuing calibration verification	<b>REC</b>	percent recovery
<b>COC</b>	chain of custody record	<b>RPD</b>	relative percent difference
<b>D</b>	dissolved fraction	<b>SCV</b>	secondary calibration verification
<b>DUP</b>	duplicate	<b>SOP</b>	standard operating procedure
<b>IBL</b>	instrument blank	<b>SRM</b>	standard reference material
<b>ICV</b>	initial calibration verification	<b>T</b>	total fraction
<b>MDL</b>	method detection limit	<b>TR</b>	total recoverable fraction
<b>MRL</b>	method reporting limit		

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>J</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J-1</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Applied Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BAL.



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
OF2-E4	1706028-01	Water	Sample	02/06/2017	02/08/2017
OF2-E4	1706028-02	Water	Sample	02/06/2017	02/08/2017
OF3-E4	1706028-03	Water	Sample	02/06/2017	02/08/2017
OF3-E4	1706028-04	Water	Sample	02/06/2017	02/08/2017
WCTSW001B-E4	1706028-05	Water	Sample	02/06/2017	02/08/2017
WCTSW001B-E4	1706028-06	Water	Sample	02/06/2017	02/08/2017
WCTSW002B-E4	1706028-07	Water	Sample	02/06/2017	02/08/2017
WCTSW002B-E4	1706028-08	Water	Sample	02/06/2017	02/08/2017
WCTSW003B-E4	1706028-09	Water	Sample	02/06/2017	02/08/2017
WCTSW003B-E4	1706028-10	Water	Sample	02/06/2017	02/08/2017
WCTSW004B-E4	1706028-11	Water	Sample	02/06/2017	02/08/2017
WCTSW004B-E4	1706028-12	Water	Sample	02/06/2017	02/08/2017
BWSW001-E4	1706028-13	Water	Sample	02/06/2017	02/08/2017
BWSW001-E4	1706028-14	Water	Sample	02/06/2017	02/08/2017
USSW001-E4	1706028-15	Water	Sample	02/06/2017	02/08/2017
USSW001-E4	1706028-16	Water	Sample	02/06/2017	02/08/2017

## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
As	Water	EPA 1638 Mod	03/09/2017	03/15/2017	B170644	1700307
As	Water	EPA 1638 Mod	03/14/2017	03/15/2017	B170644	1700307
As	Water	EPA 1638 Mod	03/14/2017	03/15/2017	B170644	1700307
As	Water	EPA 1638 Mod	03/24/2017	04/03/2017	B170821	1700393
As	Water	EPA 1638 Mod	03/29/2017	04/03/2017	B170822	1700393
As	Water	EPA 1638 Mod	02/20/2017	02/25/2017	B170321	1700242
Fe	Water	EPA 1638 Mod	03/09/2017	03/15/2017	B170644	1700307
Fe	Water	EPA 1638 Mod	03/14/2017	03/15/2017	B170644	1700307
Fe	Water	EPA 1638 Mod	03/24/2017	03/30/2017	B170748	1700389
Fe	Water	EPA 1638 Mod	03/29/2017	03/30/2017	B170748	1700389
Mn	Water	EPA 1638 Mod	02/09/2017	02/16/2017	B170342	1700193
Mn	Water	EPA 1638 Mod	02/09/2017	03/30/2017	B170748	1700389
Mn	Water	EPA 1638 Mod	03/29/2017	03/30/2017	B170748	1700389



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
MW007-E4	1713012-01	Water	Sample	02/22/2017	03/28/2017
MW007-E4	1713012-02	Water	Sample	02/22/2017	03/28/2017

## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
As	Water	EPA 1638 Mod	03/09/2017	03/15/2017	B170644	1700307
As	Water	EPA 1638 Mod	03/14/2017	03/15/2017	B170644	1700307
As	Water	EPA 1638 Mod	03/14/2017	03/15/2017	B170644	1700307
As	Water	EPA 1638 Mod	03/24/2017	04/03/2017	B170821	1700393
As	Water	EPA 1638 Mod	03/29/2017	04/03/2017	B170822	1700393
As	Water	EPA 1638 Mod	02/20/2017	02/25/2017	B170321	1700242
Fe	Water	EPA 1638 Mod	03/09/2017	03/15/2017	B170644	1700307
Fe	Water	EPA 1638 Mod	03/14/2017	03/15/2017	B170644	1700307
Fe	Water	EPA 1638 Mod	03/24/2017	03/30/2017	B170748	1700389
Fe	Water	EPA 1638 Mod	03/29/2017	03/30/2017	B170748	1700389
Mn	Water	EPA 1638 Mod	02/09/2017	02/16/2017	B170342	1700193
Mn	Water	EPA 1638 Mod	02/09/2017	03/30/2017	B170748	1700389
Mn	Water	EPA 1638 Mod	03/29/2017	03/30/2017	B170748	1700389



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>BWSW001-E4</b>										
1706028-14	As	Water	D	2.68		0.177	1.01	µg/L	B170644	1700307
1706028-13	As	Water	TR	2.70		0.290	1.01	µg/L	B170321	1700242
1706028-14	Fe	Water	D	≤ 7.07	U	7.07	21.5	µg/L	B170644	1700307
1706028-14	Mn	Water	D	7.52		0.530	1.59	µg/L	B170342	1700193
<b>MW007-E4</b>										
1713012-01	As	Water	TR	0.951	J	0.288	1.00	µg/L	B170822	1700393
1713012-02	As	Water	D	1.14		0.175	1.00	µg/L	B170821	1700393
1713012-02	Fe	Water	D	1880		7.00	21.2	µg/L	B170748	1700389
1713012-02	Mn	Water	D	781		0.525	1.58	µg/L	B170748	1700389
<b>OF2-E4</b>										
1706028-02	As	Water	D	315		0.177	1.01	µg/L	B170644	1700307
1706028-01	As	Water	TR	305		0.290	1.01	µg/L	B170321	1700242
1706028-02	Fe	Water	D	2580		7.07	21.5	µg/L	B170644	1700307
1706028-02	Mn	Water	D	140		0.530	1.59	µg/L	B170342	1700193
<b>OF3-E4</b>										
1706028-04	As	Water	D	87.9		0.177	1.01	µg/L	B170644	1700307
1706028-03	As	Water	TR	90.4		0.290	1.01	µg/L	B170321	1700242
1706028-04	Fe	Water	D	766		7.07	21.5	µg/L	B170644	1700307
1706028-04	Mn	Water	D	54.0		0.530	1.59	µg/L	B170342	1700193
<b>USSW001-E4</b>										
1706028-16	As	Water	D	0.858	J	0.177	1.01	µg/L	B170644	1700307
1706028-15	As	Water	TR	0.570	J	0.290	1.01	µg/L	B170321	1700242
1706028-16	Fe	Water	D	497		7.07	21.5	µg/L	B170644	1700307
1706028-16	Mn	Water	D	76.4		0.530	1.59	µg/L	B170342	1700193
<b>WCTSW001B-E4</b>										
1706028-05	As	Water	TR	11.2		0.290	1.01	µg/L	B170822	1700393
1706028-06	As	Water	D	0.506	J	0.177	1.01	µg/L	B170821	1700393
1706028-06	Fe	Water	D	630		7.07	21.5	µg/L	B170748	1700389
1706028-06	Mn	Water	D	117		0.530	1.59	µg/L	B170748	1700389



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTSW002B-E4</b>										
1706028-08	As	Water	D	1.71		0.177	1.01	µg/L	B170644	1700307
1706028-07	As	Water	TR	4.23		0.290	1.01	µg/L	B170321	1700242
1706028-08	Fe	Water	D	724		7.07	21.5	µg/L	B170644	1700307
1706028-08	Mn	Water	D	108		0.530	1.59	µg/L	B170342	1700193
<b>WCTSW003B-E4</b>										
1706028-10	As	Water	D	1.22		0.177	1.01	µg/L	B170644	1700307
1706028-09	As	Water	TR	1.66		0.290	1.01	µg/L	B170321	1700242
1706028-10	Fe	Water	D	669		7.07	21.5	µg/L	B170644	1700307
1706028-10	Mn	Water	D	106		0.530	1.59	µg/L	B170342	1700193
<b>WCTSW004B-E4</b>										
1706028-12	As	Water	D	1.30		0.177	1.01	µg/L	B170644	1700307
1706028-11	As	Water	TR	1.13		0.290	1.01	µg/L	B170321	1700242
1706028-12	Fe	Water	D	728		7.07	21.5	µg/L	B170644	1700307
1706028-12	Mn	Water	D	88.5		0.530	1.59	µg/L	B170342	1700193



## Accuracy & Precision Summary

Batch: B170321  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B170321-BS1	Blank Spike, (1634047) As		500.0	486.1	µg/L	97% 75-125	
B170321-BS2	Blank Spike, (1634047) As		500.0	483.6	µg/L	97% 75-125	
B170321-BS3	Blank Spike, (1634047) As		200.0	189.4	µg/L	95% 75-125	
B170321-SRM1	Standard Reference Material (1647035, TMDA 70.2 Reference Standard - Bottle3) As		42.30	40.19	µg/L	95% 75-125	
B170321-SRM2	Standard Reference Material (1647035, TMDA 70.2 Reference Standard - Bottle3) As		42.30	39.59	µg/L	94% 75-125	
B170321-SRM3	Standard Reference Material (1647035, TMDA 70.2 Reference Standard - Bottle3) As		42.30	40.20	µg/L	95% 75-125	
B170321-DUP5	Duplicate, (1706028-09) As	1.658		1.456	µg/L		13% 20
B170321-MS5	Matrix Spike, (1706028-09) As	1.658	202.0	194.3	µg/L	95% 75-125	
B170321-MSD5	Matrix Spike Duplicate, (1706028-09) As	1.658	202.0	193.7	µg/L	95% 75-125	0.3% 20



## Accuracy & Precision Summary

**Batch:** B170342  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B170342-SRM1</b>	<b>Standard Reference Material (NC00370, T191 as SRM)</b>						
	Mn		27.00	26.98	µg/L	100% 75-125	
<b>B170342-SRM2</b>	<b>Standard Reference Material (1649067, NIST 1643f (batch SRM))</b>						
	Mn		37.14	36.90	µg/L	99% 75-125	
<b>B170342-DUP1</b>	<b>Duplicate, (1706028-16)</b>						
	Mn	76.43		78.14	µg/L		2% 20
<b>B170342-MS1</b>	<b>Matrix Spike, (1706028-16)</b>						
	Mn	76.43	252.5	309.4	µg/L	92% 75-125	
<b>B170342-MSD1</b>	<b>Matrix Spike Duplicate, (1706028-16)</b>						
	Mn	76.43	252.5	311.5	µg/L	93% 75-125	0.7% 20



## Accuracy & Precision Summary

Batch: B170644  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B170644-SRM1	<b>Standard Reference Material (1708036, T221 as SRM)</b>						
	As		17.70	18.16	µg/L	103% 75-125	
	Fe		328.0	333.6	µg/L	102% 75-125	
B170644-SRM2	<b>Standard Reference Material (1709001, NIST 1640a as SRM)</b>						
	As		8.075	8.221	µg/L	102% 75-125	
	Fe		36.80	41.45	µg/L	113% 75-125	
B170644-DUP1	<b>Duplicate, (1706028-16)</b>						
	As	0.858		1.107	µg/L		25% 20
	Fe	497.4		495.2	µg/L		0.4% 20
B170644-MS1	<b>Matrix Spike, (1706028-16)</b>						
	As	0.858	252.5	254.6	µg/L	100% 75-125	
	Fe	497.4	2525	3072	µg/L	102% 75-125	
B170644-MSD1	<b>Matrix Spike Duplicate, (1706028-16)</b>						
	As	0.858	252.5	251.1	µg/L	99% 75-125	1% 20
	Fe	497.4	2525	3033	µg/L	100% 75-125	1% 20





## Accuracy & Precision Summary

**Batch:** B170748  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B170748-SRM1</b>	<b>Standard Reference Material (1708036, T221 as SRM)</b>						
	Fe		328.0	324.2	µg/L	99% 75-125	
	Mn		33.60	33.38	µg/L	99% 75-125	
<b>B170748-SRM2</b>	<b>Standard Reference Material (1709001, NIST 1640a as SRM)</b>						
	Fe		36.80	37.73	µg/L	103% 75-125	
	Mn		40.39	36.39	µg/L	90% 75-125	
<b>B170748-DUP4</b>	<b>Duplicate, (1713012-02)</b>						
	Fe	1877		1861	µg/L		0.8% 20
	Mn	780.9		780.9	µg/L		0.008% 20
<b>B170748-MS4</b>	<b>Matrix Spike, (1713012-02)</b>						
	Fe	1877	2500	4309	µg/L	97% 75-125	
	Mn	780.9	250.0	1042	µg/L	105% 75-125	
<b>B170748-MSD4</b>	<b>Matrix Spike Duplicate, (1713012-02)</b>						
	Fe	1877	2500	4213	µg/L	93% 75-125	2% 20
	Mn	780.9	250.0	1017	µg/L	95% 75-125	2% 20



## Accuracy & Precision Summary

**Batch:** B170821  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B170821-SRM1</b>	<b>Standard Reference Material (1708036, T221 as SRM)</b>						
	As		17.70	17.51	µg/L	99% 75-125	
<b>B170821-SRM2</b>	<b>Standard Reference Material (1709001, NIST 1640a as SRM)</b>						
	As		8.075	7.838	µg/L	97% 75-125	
<b>B170821-DUP1</b>	<b>Duplicate, (1713012-02)</b>						
	As	1.135		1.080	µg/L		5% 20
<b>B170821-MS1</b>	<b>Matrix Spike, (1713012-02)</b>						
	As	1.135	250.0	244.8	µg/L	97% 75-125	
<b>B170821-MSD1</b>	<b>Matrix Spike Duplicate, (1713012-02)</b>						
	As	1.135	250.0	238.8	µg/L	95% 75-125	2% 20



## Accuracy & Precision Summary

**Batch:** B170822  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B170822-BS1</b>	<b>Blank Spike, (1713081)</b> As		200.0	186.4	µg/L	93% 75-125	
<b>B170822-SRM1</b>	<b>Standard Reference Material (1647035, TMDA 70.2 Reference Standard - Bottle3)</b> As		42.30	42.35	µg/L	100% 75-125	
<b>B170822-DUP1</b>	<b>Duplicate, (1706028-05)</b> As	11.21		12.36	µg/L		10% 20
<b>B170822-MS1</b>	<b>Matrix Spike, (1706028-05)</b> As	11.21	202.0	203.6	µg/L	95% 75-125	
<b>B170822-MSD1</b>	<b>Matrix Spike Duplicate, (1706028-05)</b> As	11.21	202.0	213.1	µg/L	100% 75-125	5% 20

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1706028, 1713012  
**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Method Blanks & Reporting Limits

**Batch:** B170321  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units
B170321-BLK1	-0.036	µg/L
B170321-BLK2	-0.024	µg/L
B170321-BLK3	-0.012	µg/L
B170321-BLK4	0.007	µg/L

**Average:** -0.016  
**Limit:** 0.080

**MDL:** 0.023  
**MRL:** 0.080

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1706028, 1713012  
**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Method Blanks & Reporting Limits

**Batch:** B170342  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** Mn

Sample	Result	Units
B170342-BLK1	-0.047	µg/L
B170342-BLK2	-0.046	µg/L
B170342-BLK3	-0.039	µg/L
B170342-BLK4	-0.034	µg/L

**Average:** -0.042  
**Limit:** 0.063

**MDL:** 0.021  
**MRL:** 0.063



## Method Blanks & Reporting Limits

**Batch:** B170644  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units	
B170644-BLK1	0.003	µg/L	
B170644-BLK2	-0.0008	µg/L	
B170644-BLK3	0.006	µg/L	
B170644-BLK4	0.007	µg/L	
<b>Average:</b>	0.004		<b>MDL:</b> 0.007
<b>Limit:</b>	0.040		<b>MRL:</b> 0.040

**Analyte:** Fe

Sample	Result	Units	
B170644-BLK1	-0.27	µg/L	
B170644-BLK2	-0.28	µg/L	
B170644-BLK3	-0.22	µg/L	
B170644-BLK4	-0.29	µg/L	
<b>Average:</b>	-0.27		<b>MDL:</b> 0.28
<b>Limit:</b>	0.85		<b>MRL:</b> 0.85



## Method Blanks & Reporting Limits

**Batch:** B170748  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** Fe

Sample	Result	Units	
B170748-BLK1	0.02	µg/L	
B170748-BLK2	0.03	µg/L	
B170748-BLK3	0.15	µg/L	
B170748-BLK4	0.006	µg/L	
<b>Average:</b>	<b>0.05</b>		<b>MDL: 0.28</b>
<b>Limit:</b>	<b>0.85</b>		<b>MRL: 0.85</b>

**Analyte:** Mn

Sample	Result	Units	
B170748-BLK1	-0.007	µg/L	
B170748-BLK2	-0.008	µg/L	
B170748-BLK3	-0.002	µg/L	
B170748-BLK4	-0.006	µg/L	
<b>Average:</b>	<b>-0.006</b>		<b>MDL: 0.021</b>
<b>Limit:</b>	<b>0.063</b>		<b>MRL: 0.063</b>

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1706028, 1713012  
**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Method Blanks & Reporting Limits

**Batch:** B170821  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units
B170821-BLK1	-0.004	µg/L
B170821-BLK2	-0.003	µg/L
B170821-BLK3	-0.005	µg/L
B170821-BLK4	-0.003	µg/L

**Average:** -0.004  
**Limit:** 0.040

**MDL:** 0.007  
**MRL:** 0.040



**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1706028, 1713012  
**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Method Blanks & Reporting Limits

**Batch:** B170822  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units
B170822-BLK1	0.060	µg/L
B170822-BLK2	0.005	µg/L
B170822-BLK3	0.038	µg/L
B170822-BLK4	0.090	µg/L

**Average:** 0.048  
**Limit:** 1.000

**MDL:** 0.288  
**MRL:** 1.00



## Sample Containers

Lab ID:	Sample:	Des	Container	Size	Lot	Report Matrix:	Sample Type:	Preservation	P-Lot	Collected:	Received:	pH	Ship. Cont.
1706028-01	OF2-E4	A	Bottle HDPE ICP-W	125mL	17-0007	Water	Sample	1% HNO3 (BAL)	1653042	02/06/2017	02/08/2017	<2	Cooler
1706028-02	OF2-E4	A	Bottle HDPE ICP-W	125mL	17-0007	Water	Sample	1% HNO3 (BAL)	1653042	02/06/2017	02/08/2017	<2	Cooler
1706028-03	OF3-E4	A	Bottle HDPE ICP-W	125mL	17-0007	Water	Sample	1% HNO3 (BAL)	1653042	02/06/2017	02/08/2017	<2	Cooler
1706028-04	OF3-E4	A	Bottle HDPE ICP-W	125mL	17-0007	Water	Sample	1% HNO3 (BAL)	1653042	02/06/2017	02/08/2017	<2	Cooler
1706028-05	WCTSW001B-E4	A	Bottle HDPE ICP-W	125mL	17-0007	Water	Sample	1% HNO3 (BAL)	1653042	02/06/2017	02/08/2017	<2	Cooler
1706028-06	WCTSW001B-E4	A	Bottle HDPE ICP-W	125mL	17-0007	Water	Sample	1% HNO3 (BAL)	1653042	02/06/2017	02/08/2017	<2	Cooler



## Sample Containers

Lab ID:	Sample:	Report Matrix:	Sample Type:	Collected:
1706028-07	WCTSW002B-E4	Water	Sample	02/06/2017
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)
				<b>P-Lot</b>
				1653042
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler
1706028-08	WCTSW002B-E4	Water	Sample	02/06/2017
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)
				<b>P-Lot</b>
				1653042
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler
1706028-09	WCTSW003B-E4	Water	Sample	02/06/2017
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)
				<b>P-Lot</b>
				1653042
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler
1706028-10	WCTSW003B-E4	Water	Sample	02/06/2017
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)
				<b>P-Lot</b>
				1653042
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler
1706028-11	WCTSW004B-E4	Water	Sample	02/06/2017
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)
				<b>P-Lot</b>
				1653042
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler
1706028-12	WCTSW004B-E4	Water	Sample	02/06/2017
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)
				<b>P-Lot</b>
				1653042
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1706028, 1713012  
**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Sample Containers

<b>Lab ID:</b> 1706028-13			<b>Report Matrix:</b> Water		<b>Collected:</b> 02/06/2017		
<b>Sample:</b> BWSW001-E4			<b>Sample Type:</b> Sample		<b>Received:</b> 02/08/2017		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653042	<2	Cooler

<b>Lab ID:</b> 1706028-14			<b>Report Matrix:</b> Water		<b>Collected:</b> 02/06/2017		
<b>Sample:</b> BWSW001-E4			<b>Sample Type:</b> Sample		<b>Received:</b> 02/08/2017		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653042	<2	Cooler

<b>Lab ID:</b> 1706028-15			<b>Report Matrix:</b> Water		<b>Collected:</b> 02/06/2017		
<b>Sample:</b> USSW001-E4			<b>Sample Type:</b> Sample		<b>Received:</b> 02/08/2017		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653042	<2	Cooler

<b>Lab ID:</b> 1706028-16			<b>Report Matrix:</b> Water		<b>Collected:</b> 02/06/2017		
<b>Sample:</b> USSW001-E4			<b>Sample Type:</b> Sample		<b>Received:</b> 02/08/2017		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653042	<2	Cooler

## Sample Containers

<b>Lab ID:</b> 1713012-01			<b>Report Matrix:</b> Water		<b>Collected:</b> 02/22/2017		
<b>Sample:</b> MW007-E4			<b>Sample Type:</b> Sample		<b>Received:</b> 03/28/2017		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Client-Provided	250ml	na	HNO3 (Client)	na	<2	Cooler 2

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1706028, 1713012  
**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Sample Containers

<b>Lab ID:</b> 1713012-02			<b>Report Matrix:</b> Water			<b>Collected:</b> 02/22/2017
<b>Sample:</b> MW007-E4			<b>Sample Type:</b> Sample			<b>Received:</b> 03/28/2017
<b>Des Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A Client-Provided	250ml	na	HNO3 (client)	na	<2	Cooler 2

## Shipping Containers

### Cooler

**Received:** February 8, 2017 9:55  
**Tracking No:** none via Customer Drop-Off  
**Coolant Type:** Blue Ice  
**Temperature:** 1.6 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR#7

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

## Shipping Containers

### Cooler 2

**Received:** March 28, 2017 13:10  
**Tracking No:** Courier via Courier  
**Coolant Type:** None  
**Temperature:** ambient

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

GSI  
55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

# Chain of Custody Record

Field Sampler(s): SK, R, PP  
SAL Report # 17060231713012

**Client Contact**  
Project Name: Parcel 15 - POT  
Project # or PO #: 603.002.014  
Project Manager: Erin Hughes  
Phone #: 971-200-8528  
Report to email: echughes@gsiws.com

**For Lab Use Only:**  
SDG: \_\_\_\_\_  
Custody Seals intact?  
Hand delivered?  
Cooler Temp: \_\_\_\_\_ °C  
Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Laboratory**

**Lab PM**

**Analysis Turnaround Time:**  
Standard 21 day TAT on Most Analyses  
Rush 5 day on Dissolved Metals in Porewater

**TestAmerica**

**Brooks**

**Analysis Requested**

Brooks  
Ben Wozniak  
206-753-6158

SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)
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TestAmerica  
Sheri Cruz  
253-248-4960

**Sample Identification**

Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.
-------------	-------------	----------------------------	------------------------------	--------	------------------

OF2-E4	2/6/17	1730	85	G	W	5
OF3-E4		1810	77			5
WCTSW001B-E4		1910	1530			10
WCTSW002B-E4		1800	904			10
WCTSW003B-E4		1830	1208			10
WCTSW004B-E4		1915	170			7
BWSW001-E4		1415	1308	↓	↓	10
USSW001-E4		1140	155	G	W	10

X	X		X									X	X	
		X		X	X	X	X	X						
		X		X	X	X	X	X						
		X		X	X	X	X	X			X			
		X		X	X	X	X	X						
		X		X	X	X	X	X						

Sample Specific Notes

TB A2 Cooler Cor 5.5 Unc 6.4  
Cooler Dsc lg. blue white Lab  
WetPacks Packing none  
cli drop w/o cs Brooks cooler

**Possible Hazard Identification:**  
Are samples hazardous?  No  
If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
select hazard(s):  
Relinquished by: Steve Lee Date/Time: 2-7-2017 1216  
Relinquished by: [Signature] Date/Time: 2/8/17 0955  
Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
Received by: [Signature] Date/Time: 2/7/17 1217  
Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received in Laboratory by: [Signature] Date/Time: 2/8/17 0955

**Special Instructions/QC Requirements**  
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
Please contact Cindy Ryals at 971-200-8531 with any questions.

cooler 1  
TB Cooler IR4 Cor 3.7 Unc 4.3  
Cooler Dsc lg. blue white Lab  
WetPacks Packing bubble  
cli drop w/o cs

cooler 2  
TB Cooler IR4 Cor 3.0 Unc 3.6  
Cooler Dsc lg. blue white Lab  
WetPacks Packing bubble  
cli drop w/o cs

Page 1 of 2

**GSI**  
55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

Field Sampler(s):  
GSI

**Client Contact**  
Project Name: Parcel 15 - POT  
Project # or PO #: 603.002.014  
Project Manager: Erin Hughes  
Phone #: 971-200-8528  
Report to email: echughes@gsiws.com

**For Lab Use Only:**  
SDG: \_\_\_\_\_  
Custody Seals intact?  
Hand delivered?  
Cooler Temp: \_\_\_\_\_ °C  
Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Analysis Turnaround Time:**  
Standard 21 day TAT on Most Analyses  
Rush 5 day on Dissolved Metals in Porewater

Laboratory		Analysis Requested	Lab PM	
TestAmerica				Brooks
Analysis Requested				
SM5310B: Total Organic Carbon	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)** 300.0: Nitrate and Nitrite (dissolved; field filtered) SM2320B: Alkalinity (field filtered)** 385.1: Major Anions (Orthophosphate, dissolved; field filtered) 6020A: Arsenic (total) 6020A: Arsenic, Iron, and Manganese (dissolved; field filtered) 8260D SIM: Pentachlorophenol 1638M: Arsenic (total) 1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)** Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Brooks Ben Wozniak 206-753-6158	
SM5310B: Dissolved Organic Carbon (field filtered)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*			TestAmerica Sheri Cruz 253-248-4960
SM4500 S 2D: Sulfide (dissolved; field filtered)	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**		Sample Specific Notes	
SM2540D: Total Suspended Solids (TSS)	300.0: Nitrate and Nitrite (dissolved; field filtered)			
6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	SM2320B: Alkalinity (field filtered)**			
300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	385.1: Major Anions (Orthophosphate, dissolved; field filtered)			
300.0: Nitrate and Nitrite (dissolved; field filtered)	6020A: Arsenic (total)			
SM2320B: Alkalinity (field filtered)**	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)			
385.1: Major Anions (Orthophosphate, dissolved; field filtered)	8260D SIM: Pentachlorophenol			
6020A: Arsenic (total)	1638M: Arsenic (total)			
6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)**			
8260D SIM: Pentachlorophenol	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)			

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na, dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)**	385.1: Major Anions (Orthophosphate, dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)**	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes	
B005R-E4	2/22/17	1155	483	G	N		X	X	X														
B505R-E4		1130	483				X	X	X														
MW003R-E4		1400	683				X	X	X														
MW005R-E4		1500	389				X	X	X														
MW006R-E4		1605	617				X	X	X														
MW010-E4	1945	1640	1126				X	X	X	X	X	X	X	X	X					X	X	X	
MW013-E4		1445	631				X	X	X	X	X	X	X	X	X					X	X	X	
MW007-E4		1700	187				X	X	X	X	X	X	X	X	X	X				X	X	X	
MW507-E4	✓	1715	187	↓	↓		X	X	X	X	X	X	X	X	X	X				X	X	X	
MW008-E4	2/23/17	1150	1800	G	N		X	X	X											X	X		
MW012-E4	↓	1125	1010	↓	↓		X	X	X	X	X	X	X	X	X					X	X	X	
MW009-E4	↓	1245	919	↓	↓		X	X	X	X	X	X	X	X	X					X	X	X	

**Possible Hazard Identification:**  
Are samples hazardous?  No  
If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
select hazard(s):  
Relinquished by: Renée Foye Date/Time: 2/23/17 1430  
Relinquished by: Tom Blanton Date/Time: 3/28/17 1310  
Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
Received by: M. Foye Date/Time: 2/23/17 1428  
Received by: J. Newby Date/Time: 3/28/17-1310  
Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Special Instructions/QC Requirements**  
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
Please contact Cindy Ryals at 971-200-8531 with any questions.





18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • info@brooksapplied.com

March 24, 2017

GSI Water Solutions, Inc.  
ATTN: Erin Carroll Hughes  
55 SW Yamhill St. Suite 300  
Portland OR 97204  
cryals@gsiws.com

RE: Project GSI-PR1601a Waters

Client Project: Parcel 15 – POT (603.002.012)

Ms. Carroll Hughes,

On February 22, 2017 and February 24, 2017, Brooks Applied Labs (BAL) received twenty-eight (28) aqueous samples. The samples were logged-in for the analyses of dissolved arsenic (As), dissolved iron (Fe), dissolved manganese (Mn), total recoverable As, and arsenic speciation, as per the chain-of-custody (COC) forms. All samples requiring filtration were field-filtered by the client prior to reception at BAL. All samples were received and stored according to BAL SOPs and EPA methodology.

It should be noted that the total and dissolved metals fractions for the sample identified as MW007-E4 were not present in the shipment received on February 24<sup>th</sup>. Consequently, no results for total As, dissolved Fe, dissolved Mn, and dissolved As are available at this time.

#### **Dissolved Metals Quantitation by ICP-QQQ-MS**

All aqueous samples for dissolved metals were directly analyzed for As, Fe, and Mn by inductively coupled plasma triple quadrupole mass spectrometry (ICP-QQQ-MS). The ICP-QQQ-MS determinative method uses advanced interference removal techniques to ensure accuracy of the sample results. For more information, please visit the *Interference Reduction Technology* section on our website, [brooksapplied.com](http://brooksapplied.com).

#### **Batch B170491**

One of the continuing calibration blanks (CCBs) bracketing this batch contained arsenic above the MRL of 0.040µg/L, at a concentration of 0.155µg/L, due to carryover from a high-level sample that was analyzed immediately before this CCB. The arsenic concentrations of all samples reported from this batch that were bracketed by this elevated CCB were greater than ten (10) times that of the CCB, except for the sample identified as MW001-E4. Sample MW001-E4 was analyzed before the sample that caused the carryover, and therefore was unaffected. However, MW001-E4 was reanalyzed at a later date and the arsenic concentration was confirmed. Consequently, the original As result for MW001-E4 has been reported without qualification.

#### **Batch B170601**

The recovery of iron in the reference material identified as B170601-SRM2 (138%) was above the control limit of 125%. The iron recoveries of the initial calibration verification standard (98%) and the reference material B170601-SRM1 (101%) were within acceptance limits. Moreover, those of the matrix spikes B170601-MS1 (103%) and B170601-MSD1 (121%) were also acceptable, despite being spiked significantly less than the native sample concentration. Since these other quality control parameters demonstrate the accuracy of the applied analyses, B170601-SRM2 is unrepresentative



of the overall method performance. Consequently, no corrective action or qualification of the data was deemed necessary.

#### Batch B170543

One of the CCBs bracketing this batch of samples contained arsenic above the MRL, at a concentration of 0.238µg/L. The arsenic concentrations of all samples reported from this batch were greater than ten (10) times that of the elevated CCB. Since the elevated CCB had no significant impact on the reported results, no corrective action or qualification of the data was required.

#### Total Recoverable Metals Quantitation by ICP-QQQ-MS

All aqueous samples for total recoverable metals were digested on a hotblock apparatus with aliquots of with nitric and hydrochloric acids. The resulting digests were analyzed for As, Fe, and Mn via ICP-QQQ-MS.

#### Arsenic Speciation by IC-ICP-CRC-MS

All aqueous samples for As speciation were analyzed using ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS). In accordance with the project agreement, As speciation was defined as dissolved arsenite [As(III)], arsenate [As(V)], monomethylarsonic acid [MMAs], and dimethylarsinic acid [DMAs]. Arsenic species are chromatographically separated on an ion exchange column and then quantified using inductively coupled plasma collision reaction cell mass spectrometry (ICP-CRC-MS); for more information on this determinative technique, please visit the *Interference Reduction Technology* section on our website.

Although the submitted COC form requested As speciation on sample WCTPW003A-10-E4 only if it contained As above 36µg/L, the client requested that it be analyzed for arsenic speciation via email on March 3, 2017.

It should be noted that two additional, unidentified arsenic species were detected in the sample identified as WCTPW003A-10-E4. While the identities of these additional species are unknown at this time, the estimated concentrations can be provided upon client request.

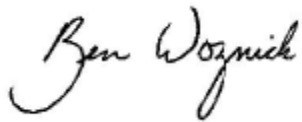
In instances where the matrix spike/matrix spike duplicate (MS/MSD) sets were spiked at a concentration less than 25% of the native sample result, the recoveries were not reported (**NR**) and the MSD RPD is not calculated (**N/C**), as they are not valid indicators of data quality. In such instances, the recoveries of the laboratory blank spike (BS) and/or standard reference material (SRM) demonstrate the accuracy of the applied methods.

All results were *not* method blank corrected, as described in the calculations section of the relevant BAL SOPs, and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

All data was reported without qualification, aside from concentration qualifiers. With the exceptions noted above, all associated quality control results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information, please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,

A handwritten signature in black ink that reads "Ben Wozniak". The signature is written in a cursive, flowing style.

Ben Wozniak  
Project Manager  
ben@brooksapplied.com



## Report Information

### Laboratory Accreditation

BAL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BAL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksapplied.com/resources/certificates-permits/>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>AR</b>	as received	<b>MS</b>	matrix spike
<b>BAL</b>	Brooks Applied Labs	<b>MSD</b>	matrix spike duplicate
<b>BLK</b>	method blank	<b>ND</b>	non-detect
<b>BS</b>	blank spike	<b>NR</b>	non-reportable
<b>CAL</b>	calibration standard	<b>N/C</b>	not calculated
<b>CCB</b>	continuing calibration blank	<b>PS</b>	post preparation spike
<b>CCV</b>	continuing calibration verification	<b>REC</b>	percent recovery
<b>COC</b>	chain of custody record	<b>RPD</b>	relative percent difference
<b>D</b>	dissolved fraction	<b>SCV</b>	secondary calibration verification
<b>DUP</b>	duplicate	<b>SOP</b>	standard operating procedure
<b>IBL</b>	instrument blank	<b>SRM</b>	standard reference material
<b>ICV</b>	initial calibration verification	<b>T</b>	total fraction
<b>MDL</b>	method detection limit	<b>TR</b>	total recoverable fraction
<b>MRL</b>	method reporting limit		

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>J</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J-1</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Applied Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BAL.



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
WCTPW001A-10-E4	1708017-01	Water	Sample	02/21/2017	02/22/2017
WCTPW001A-10-E4	1708017-02	Water	Sample	02/21/2017	02/22/2017
WCTPW001B-10-E4	1708017-03	Water	Sample	02/21/2017	02/22/2017
WCTPW001B-10-E4	1708017-04	Water	Sample	02/21/2017	02/22/2017
WCTPW002A-10-E4	1708017-05	Water	Sample	02/21/2017	02/22/2017
WCTPW002A-10-E4	1708017-06	Water	Sample	02/21/2017	02/22/2017
WCTPW002B-10-E4	1708017-07	Water	Sample	02/21/2017	02/22/2017
WCTPW002B-10-E4	1708017-08	Water	Sample	02/21/2017	02/22/2017
WCTPW003A-10-E4	1708017-09	Water	Sample	02/21/2017	02/22/2017
WCTPW003A-10-E4	1708017-10	Water	Sample	02/21/2017	02/22/2017
WCTPW003B-10-E4	1708017-11	Water	Sample	02/21/2017	02/22/2017
WCTPW003B-10-E4	1708017-12	Water	Sample	02/21/2017	02/22/2017
WCTPW004A-10-E4	1708017-13	Water	Sample	02/21/2017	02/22/2017
WCTPW004A-10-E4	1708017-14	Water	Sample	02/21/2017	02/22/2017
WCTPWSMB-10-E4	1708017-15	Water	Equip. Blank	02/21/2017	02/22/2017
WCTPWSMB-10-E4	1708017-16	Water	Equip. Blank	02/21/2017	02/22/2017
MW011-E4	1708017-17	Water	Sample	02/21/2017	02/22/2017
MW011-E4	1708017-18	Water	Sample	02/21/2017	02/22/2017
MW004-E4	1708017-19	Water	Sample	02/20/2017	02/22/2017
MW004-E4	1708017-20	Water	Sample	02/20/2017	02/22/2017
MW002-E4	1708017-21	Water	Sample	02/20/2017	02/22/2017
MW002-E4	1708017-22	Water	Sample	02/20/2017	02/22/2017
MW001-E4	1708017-23	Water	Sample	02/20/2017	02/22/2017
MW001-E4	1708017-24	Water	Sample	02/20/2017	02/22/2017
HC002-E4	1708017-25	Water	Sample	02/21/2017	02/22/2017
HC002-E4	1708017-26	Water	Sample	02/21/2017	02/22/2017
B001R-E4	1708017-27	Water	Sample	02/21/2017	02/22/2017
B001R-E4	1708017-28	Water	Sample	02/21/2017	02/22/2017
B003R-E4	1708017-29	Water	Sample	02/21/2017	02/22/2017
B003R-E4	1708017-30	Water	Sample	02/21/2017	02/22/2017



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
B005R-E4	1708047-01	Water	Sample	02/22/2017	02/24/2017
B005R-E4	1708047-02	Water	Sample	02/22/2017	02/24/2017
B505R-E4	1708047-03	Water	Sample	02/22/2017	02/24/2017
B505R-E4	1708047-04	Water	Sample	02/22/2017	02/24/2017
MW003R-E4	1708047-05	Water	Sample	02/22/2017	02/24/2017
MW003R-E4	1708047-06	Water	Sample	02/22/2017	02/24/2017
MW005R-E4	1708047-07	Water	Sample	02/22/2017	02/24/2017
MW005R-E4	1708047-08	Water	Sample	02/22/2017	02/24/2017
MW006R-E4	1708047-09	Water	Sample	02/22/2017	02/24/2017
MW006R-E4	1708047-10	Water	Sample	02/22/2017	02/24/2017
MW010-E4	1708047-11	Water	Sample	02/22/2017	02/24/2017
MW010-E4	1708047-12	Water	Sample	02/22/2017	02/24/2017
MW013-E4	1708047-13	Water	Sample	02/22/2017	02/24/2017
MW013-E4	1708047-14	Water	Sample	02/22/2017	02/24/2017
MW007-E4	1708047-15	Water	Sample	02/22/2017	02/24/2017
MW007-E4	1708047-16	Water	Sample	02/22/2017	02/24/2017
MW507-E4	1708047-17	Water	Sample	02/22/2017	02/24/2017
MW507-E4	1708047-18	Water	Sample	02/22/2017	02/24/2017
MW008-E4	1708047-19	Water	Sample	02/23/2017	02/24/2017
MW008-E4	1708047-20	Water	Sample	02/23/2017	02/24/2017
MW012-E4	1708047-21	Water	Sample	02/23/2017	02/24/2017
MW012-E4	1708047-22	Water	Sample	02/22/2017	02/24/2017
MW009-E4	1708047-23	Water	Sample	02/23/2017	02/24/2017
MW009-E4	1708047-24	Water	Sample	02/22/2017	02/24/2017
B006R-E4	1708047-25	Water	Sample	02/23/2017	02/24/2017
B006R-E4	1708047-26	Water	Sample	02/23/2017	02/24/2017



## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
As	Water	EPA 1638 Mod	02/23/2017	02/24/2017	B170491	1700233
As	Water	EPA 1638 Mod	03/03/2017	03/21/2017	B170544	1700338
As	Water	EPA 1638 Mod	02/23/2017	02/25/2017	B170503	1700242
As	Water	EPA 1638 Mod	02/23/2017	03/10/2017	B170503	1700292
As	Water	EPA 1638 Mod	03/02/2017	03/11/2017	B170518	1700296
As	Water	EPA 1638 Mod	03/02/2017	03/16/2017	B170518	1700313
As	Water	EPA 1638 Mod	02/28/2017	03/21/2017	B170543	1700328
As	Water	EPA 1638 Mod	02/28/2017	03/23/2017	B170724	1700345
As(III)	Water	SOP BAL-4100	03/02/2017	03/03/2017	B170536	1700261
As(V)	Water	SOP BAL-4100	03/02/2017	03/03/2017	B170536	1700261
DMAs	Water	SOP BAL-4100	03/02/2017	03/03/2017	B170536	1700261
Fe	Water	EPA 1638 Mod	02/23/2017	02/24/2017	B170491	1700233
Fe	Water	EPA 1638 Mod	03/09/2017	03/10/2017	B170601	1700292
Fe	Water	EPA 1638 Mod	02/28/2017	03/21/2017	B170543	1700328
MMAs	Water	SOP BAL-4100	03/02/2017	03/03/2017	B170536	1700261
Mn	Water	EPA 1638 Mod	02/23/2017	02/24/2017	B170491	1700233
Mn	Water	EPA 1638 Mod	02/28/2017	03/21/2017	B170543	1700328
Mn	Water	EPA 1638 Mod	03/09/2017	03/10/2017	B170601	1700292



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>B001R-E4</b>										
1708017-27	As	Water	TR	60000		11.6	40.4	µg/L	B170518	1700313
1708017-28	As	Water	D	47500		14.1	80.8	µg/L	B170503	1700242
1708017-28	As(III)	Water	D	40200		10.0	100	µg/L	B170536	1700261
1708017-28	As(V)	Water	D	10000		10.0	100	µg/L	B170536	1700261
1708017-28	DMAs	Water	D	≤ 15.0	U	15.0	105	µg/L	B170536	1700261
1708017-28	Fe	Water	D	116000		7.07	21.5	µg/L	B170491	1700233
1708017-28	MMAAs	Water	D	≤ 15.0	U	15.0	115	µg/L	B170536	1700261
1708017-28	Mn	Water	D	1630		0.530	1.59	µg/L	B170491	1700233
<b>B003R-E4</b>										
1708017-29	As	Water	TR	266		0.290	1.01	µg/L	B170518	1700296
1708017-30	As	Water	D	239		0.177	1.01	µg/L	B170503	1700242
1708017-30	Fe	Water	D	10400		7.07	21.5	µg/L	B170601	1700292
1708017-30	Mn	Water	D	574		0.530	1.59	µg/L	B170601	1700292
<b>B005R-E4</b>										
1708047-01	As	Water	TR	0.317	J	0.290	1.01	µg/L	B170544	1700338
1708047-02	As	Water	D	≤ 0.177	U	0.177	1.01	µg/L	B170724	1700345
1708047-02	Fe	Water	D	25700		7.07	21.5	µg/L	B170543	1700328
1708047-02	Mn	Water	D	951		0.530	1.59	µg/L	B170543	1700328
<b>B006R-E4</b>										
1708047-25	As	Water	TR	74.0		0.290	1.01	µg/L	B170544	1700338
1708047-26	As	Water	D	65.8		0.177	1.01	µg/L	B170543	1700328
1708047-26	Fe	Water	D	77700		7.07	21.5	µg/L	B170543	1700328
1708047-26	Mn	Water	D	1410		0.530	1.59	µg/L	B170543	1700328
<b>B505R-E4</b>										
1708047-03	As	Water	TR	≤ 0.290	U	0.290	1.01	µg/L	B170544	1700338
1708047-04	As	Water	D	≤ 0.177	U	0.177	1.01	µg/L	B170724	1700345
1708047-04	Fe	Water	D	25900		7.07	21.5	µg/L	B170543	1700328
1708047-04	Mn	Water	D	944		0.530	1.59	µg/L	B170543	1700328



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>HC002-E4</b>										
1708017-26	As	Water	D	13600		0.177	1.01	µg/L	B170491	1700233
1708017-25	As	Water	TR	14000		11.6	40.4	µg/L	B170518	1700313
1708017-26	As(III)	Water	D	9520		10.0	100	µg/L	B170536	1700261
1708017-26	As(V)	Water	D	2550		10.0	100	µg/L	B170536	1700261
1708017-26	DMAs	Water	D	≤ 15.0	U	15.0	105	µg/L	B170536	1700261
1708017-26	Fe	Water	D	116000		7.07	21.5	µg/L	B170491	1700233
1708017-26	MMAAs	Water	D	≤ 15.0	U	15.0	115	µg/L	B170536	1700261
1708017-26	Mn	Water	D	3410		0.530	1.59	µg/L	B170491	1700233
<b>MW001-E4</b>										
1708017-24	As	Water	D	28.0		0.177	1.01	µg/L	B170491	1700233
1708017-23	As	Water	TR	27.9		0.290	1.01	µg/L	B170518	1700296
1708017-24	Fe	Water	D	61000		7.07	21.5	µg/L	B170491	1700233
1708017-24	Mn	Water	D	2030		0.530	1.59	µg/L	B170491	1700233
<b>MW002-E4</b>										
1708017-21	As	Water	TR	2.60		0.290	1.01	µg/L	B170518	1700296
1708017-22	As	Water	D	2.27		0.177	1.01	µg/L	B170503	1700242
1708017-22	Fe	Water	D	≤ 7.07	U	7.07	21.5	µg/L	B170491	1700233
1708017-22	Mn	Water	D	≤ 0.530	U	0.530	1.59	µg/L	B170491	1700233
<b>MW003R-E4</b>										
1708047-05	As	Water	TR	17.4		0.290	1.01	µg/L	B170544	1700338
1708047-06	As	Water	D	15.5		0.177	1.01	µg/L	B170724	1700345
1708047-06	Fe	Water	D	57100		7.07	21.5	µg/L	B170543	1700328
1708047-06	Mn	Water	D	2040		0.530	1.59	µg/L	B170543	1700328
<b>MW004-E4</b>										
1708017-19	As	Water	TR	1.01	J	0.290	1.01	µg/L	B170518	1700296
1708017-20	As	Water	D	0.386	J	0.177	1.01	µg/L	B170503	1700242
1708017-20	Fe	Water	D	118		7.07	21.5	µg/L	B170491	1700233
1708017-20	Mn	Water	D	3.76		0.530	1.59	µg/L	B170491	1700233
<b>MW005R-E4</b>										
1708047-07	As	Water	TR	2.38		0.290	1.01	µg/L	B170544	1700338
1708047-08	As	Water	D	1.71		0.177	1.01	µg/L	B170724	1700345
1708047-08	Fe	Water	D	17800		7.07	21.5	µg/L	B170543	1700328
1708047-08	Mn	Water	D	182		0.530	1.59	µg/L	B170543	1700328





## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MW006R-E4</b>										
1708047-09	As	Water	TR	2.05		0.290	1.01	µg/L	B170544	1700338
1708047-10	As	Water	D	1.66		0.177	1.01	µg/L	B170724	1700345
1708047-10	Fe	Water	D	39300		7.07	21.5	µg/L	B170543	1700328
1708047-10	Mn	Water	D	5270		21.2	63.6	µg/L	B170543	1700328
<b>MW007-E4</b>										
1708047-16	As(III)	Water	D	0.591		0.050	0.500	µg/L	B170536	1700261
1708047-16	As(V)	Water	D	0.221	J	0.050	0.500	µg/L	B170536	1700261
1708047-16	DMAs	Water	D	0.077	J	0.075	0.525	µg/L	B170536	1700261
1708047-16	MMAs	Water	D	≤ 0.075	U	0.075	0.575	µg/L	B170536	1700261
<b>MW008-E4</b>										
1708047-19	As	Water	TR	29.3		0.290	1.01	µg/L	B170544	1700338
1708047-20	As	Water	D	23.2		0.177	1.01	µg/L	B170724	1700345
1708047-20	Fe	Water	D	70500		7.07	21.5	µg/L	B170543	1700328
1708047-20	Mn	Water	D	2120		0.530	1.59	µg/L	B170543	1700328
<b>MW009-E4</b>										
1708047-23	As	Water	TR	82.5		0.290	1.01	µg/L	B170544	1700338
1708047-24	As	Water	D	74.4		0.177	1.01	µg/L	B170543	1700328
1708047-24	As(III)	Water	D	2.40		0.050	0.500	µg/L	B170536	1700261
1708047-24	As(V)	Water	D	74.2		0.050	0.500	µg/L	B170536	1700261
1708047-24	DMAs	Water	D	0.169	J	0.075	0.525	µg/L	B170536	1700261
1708047-24	Fe	Water	D	207000		7.07	21.5	µg/L	B170543	1700328
1708047-24	MMAs	Water	D	0.265	J	0.075	0.575	µg/L	B170536	1700261
1708047-24	Mn	Water	D	2990		21.2	63.6	µg/L	B170543	1700328
<b>MW010-E4</b>										
1708047-11	As	Water	TR	34500		11.6	40.4	µg/L	B170544	1700338
1708047-12	As	Water	D	34300		7.07	40.4	µg/L	B170543	1700328
1708047-12	As(III)	Water	D	22800		10.0	100	µg/L	B170536	1700261
1708047-12	As(V)	Water	D	7790		10.0	100	µg/L	B170536	1700261
1708047-12	DMAs	Water	D	≤ 15.0	U	15.0	105	µg/L	B170536	1700261
1708047-12	Fe	Water	D	123000		7.07	21.5	µg/L	B170543	1700328
1708047-12	MMAs	Water	D	≤ 15.0	U	15.0	115	µg/L	B170536	1700261
1708047-12	Mn	Water	D	6780		21.2	63.6	µg/L	B170543	1700328



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>MW011-E4</b>										
1708017-17	As	Water	TR	20.3		0.290	1.01	µg/L	B170518	1700296
1708017-18	As	Water	D	19.2		0.177	1.01	µg/L	B170503	1700242
1708017-18	Fe	Water	D	81600		7.07	21.5	µg/L	B170491	1700233
1708017-18	Mn	Water	D	3300		0.530	1.59	µg/L	B170491	1700233
<b>MW012-E4</b>										
1708047-21	As	Water	TR	17.5		0.290	1.01	µg/L	B170544	1700338
1708047-22	As	Water	D	15.4		0.177	1.01	µg/L	B170724	1700345
1708047-22	As(III)	Water	D	1.19		0.050	0.500	µg/L	B170536	1700261
1708047-22	As(V)	Water	D	13.7		0.050	0.500	µg/L	B170536	1700261
1708047-22	DMAs	Water	D	0.180	J	0.075	0.525	µg/L	B170536	1700261
1708047-22	Fe	Water	D	126000		7.07	21.5	µg/L	B170543	1700328
1708047-22	MMAs	Water	D	≤ 0.075	U	0.075	0.575	µg/L	B170536	1700261
1708047-22	Mn	Water	D	5870		21.2	63.6	µg/L	B170543	1700328
<b>MW013-E4</b>										
1708047-13	As	Water	TR	6540		11.6	40.4	µg/L	B170544	1700338
1708047-14	As	Water	D	6370		7.07	40.4	µg/L	B170543	1700328
1708047-14	As(III)	Water	D	5090		10.0	100	µg/L	B170536	1700261
1708047-14	As(V)	Water	D	798		10.0	100	µg/L	B170536	1700261
1708047-14	DMAs	Water	D	≤ 15.0	U	15.0	105	µg/L	B170536	1700261
1708047-14	Fe	Water	D	61500		7.07	21.5	µg/L	B170543	1700328
1708047-14	MMAs	Water	D	≤ 15.0	U	15.0	115	µg/L	B170536	1700261
1708047-14	Mn	Water	D	5000		21.2	63.6	µg/L	B170543	1700328
<b>MW507-E4</b>										
1708047-17	As	Water	TR	0.930	J	0.290	1.01	µg/L	B170544	1700338
1708047-18	As	Water	D	1.08		0.177	1.01	µg/L	B170724	1700345
1708047-18	As(III)	Water	D	0.641		0.050	0.500	µg/L	B170536	1700261
1708047-18	As(V)	Water	D	0.183	J	0.050	0.500	µg/L	B170536	1700261
1708047-18	DMAs	Water	D	0.088	J	0.075	0.525	µg/L	B170536	1700261
1708047-18	Fe	Water	D	1860		7.07	21.5	µg/L	B170543	1700328
1708047-18	MMAs	Water	D	≤ 0.075	U	0.075	0.575	µg/L	B170536	1700261
1708047-18	Mn	Water	D	868		0.530	1.59	µg/L	B170543	1700328



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTPW001A-10-E4</b>										
1708017-02	As	Water	D	5.43		0.177	1.01	µg/L	B170491	1700233
1708017-01	As	Water	TR	7.56		0.290	1.01	µg/L	B170518	1700296
1708017-02	Fe	Water	D	10800		7.07	21.5	µg/L	B170491	1700233
1708017-02	Mn	Water	D	653		0.530	1.59	µg/L	B170491	1700233
<b>WCTPW001B-10-E4</b>										
1708017-04	As	Water	D	13.4		0.177	1.01	µg/L	B170491	1700233
1708017-03	As	Water	TR	17.0		0.290	1.01	µg/L	B170518	1700296
1708017-04	Fe	Water	D	13700		7.07	21.5	µg/L	B170491	1700233
1708017-04	Mn	Water	D	1430		0.530	1.59	µg/L	B170491	1700233
<b>WCTPW002A-10-E4</b>										
1708017-06	As	Water	D	5.92		0.177	1.01	µg/L	B170491	1700233
1708017-05	As	Water	TR	7.48		0.290	1.01	µg/L	B170518	1700296
1708017-06	Fe	Water	D	2100		7.07	21.5	µg/L	B170491	1700233
1708017-06	Mn	Water	D	163		0.530	1.59	µg/L	B170491	1700233
<b>WCTPW002B-10-E4</b>										
1708017-07	As	Water	TR	10.3		0.290	1.01	µg/L	B170518	1700296
1708017-08	As	Water	D	8.45		0.177	1.01	µg/L	B170503	1700242
1708017-08	Fe	Water	D	23800		7.07	21.5	µg/L	B170491	1700233
1708017-08	Mn	Water	D	502		0.530	1.59	µg/L	B170491	1700233
<b>WCTPW003A-10-E4</b>										
1708017-09	As	Water	TR	33.1		0.290	1.01	µg/L	B170518	1700296
1708017-10	As	Water	D	34.3		0.177	1.01	µg/L	B170503	1700242
1708017-10	As(III)	Water	D	12.8		0.050	0.500	µg/L	B170536	1700261
1708017-10	As(V)	Water	D	11.4		0.050	0.500	µg/L	B170536	1700261
1708017-10	DMAs	Water	D	≤ 0.075	U	0.075	0.525	µg/L	B170536	1700261
1708017-10	Fe	Water	D	40100		7.07	21.5	µg/L	B170491	1700233
1708017-10	MMAs	Water	D	≤ 0.075	U	0.075	0.575	µg/L	B170536	1700261
1708017-10	Mn	Water	D	958		0.530	1.59	µg/L	B170491	1700233
<b>WCTPW003B-10-E4</b>										
1708017-11	As	Water	TR	14.3		0.290	1.01	µg/L	B170518	1700296
1708017-12	As	Water	D	9.96		0.177	1.01	µg/L	B170503	1700242
1708017-12	Fe	Water	D	11500		7.07	21.5	µg/L	B170491	1700233
1708017-12	Mn	Water	D	1650		0.530	1.59	µg/L	B170491	1700233



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>WCTPW004A-10-E4</b>										
1708017-13	As	Water	TR	10.7		0.290	1.01	µg/L	B170518	1700296
1708017-14	As	Water	D	8.03		0.177	1.01	µg/L	B170503	1700292
1708017-14	Fe	Water	D	7490		7.07	21.5	µg/L	B170601	1700292
1708017-14	Mn	Water	D	95.4		0.530	1.59	µg/L	B170601	1700292
<b>WCTPWSMB-10-E4</b>										
1708017-15	As	Water	TR	≤ 0.290	U	0.290	1.01	µg/L	B170518	1700296
1708017-16	As	Water	D	0.056		0.007	0.040	µg/L	B170503	1700242
1708017-16	Fe	Water	D	1.16		0.28	0.86	µg/L	B170491	1700233
1708017-16	Mn	Water	D	0.045	J	0.021	0.064	µg/L	B170491	1700233



## Accuracy & Precision Summary

Batch: B170491  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B170491-SRM1</b>	<b>Standard Reference Material (NC00370, T191 as SRM)</b>						
	As		4.080	4.508	µg/L	110% 75-125	
	Fe		83.00	91.26	µg/L	110% 75-125	
	Mn		27.00	26.30	µg/L	97% 75-125	
<b>B170491-SRM2</b>	<b>Standard Reference Material (1649067, NIST 1643f (batch SRM))</b>						
	As		57.42	58.56	µg/L	102% 75-125	
	Fe		93.44	98.45	µg/L	105% 75-125	
	Mn		37.14	35.48	µg/L	96% 75-125	
<b>B170491-DUP1</b>	<b>Duplicate, (1708017-02)</b>						
	As	5.427		6.143	µg/L		12% 20
	Fe	10780		10810	µg/L		0.3% 20
	Mn	652.9		627.4	µg/L		4% 20
<b>B170491-MS1</b>	<b>Matrix Spike, (1708017-02)</b>						
	As	5.427	252.5	271.8	µg/L	105% 75-125	
	Fe	10780	2525	13580	µg/L	NR 75-125	
	Mn	652.9	252.5	885.3	µg/L	92% 75-125	
<b>B170491-MSD1</b>	<b>Matrix Spike Duplicate, (1708017-02)</b>						
	As	5.427	252.5	271.0	µg/L	105% 75-125	0.3% 20
	Fe	10780	2525	13700	µg/L	NR 75-125	N/C 20
	Mn	652.9	252.5	906.4	µg/L	100% 75-125	2% 20



## Accuracy & Precision Summary

**Batch:** B170503  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B170503-SRM1</b>	<b>Standard Reference Material (1708036, T221 as SRM)</b>						
	As		17.70	17.76	µg/L	100% 75-125	
<b>B170503-SRM2</b>	<b>Standard Reference Material (1709001, NIST 1640a as SRM)</b>						
	As		8.075	7.568	µg/L	94% 75-125	
<b>B170503-DUP1</b>	<b>Duplicate, (1708017-30)</b>						
	As	239.2		244.4	µg/L		2% 20
<b>B170503-MS1</b>	<b>Matrix Spike, (1708017-30)</b>						
	As	239.2	252.5	506.1	µg/L	106% 75-125	
<b>B170503-MSD1</b>	<b>Matrix Spike Duplicate, (1708017-30)</b>						
	As	239.2	252.5	495.1	µg/L	101% 75-125	2% 20



## Accuracy & Precision Summary

Batch: B170518  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B170518-BS1	Blank Spike, (1634056) As		50.00	48.59	µg/L	97% 75-125	
B170518-BS2	Blank Spike, (1634056) As		50.00	49.84	µg/L	100% 75-125	
B170518-BS3	Blank Spike, (1634056) As		200.0	198.1	µg/L	99% 75-125	
B170518-SRM1	Standard Reference Material (1647035, TMDA 70.2 Reference Standard - Bottle3) As		42.73	41.95	µg/L	98% 75-125	
B170518-SRM2	Standard Reference Material (1647035, TMDA 70.2 Reference Standard - Bottle3) As		42.73	40.22	µg/L	94% 75-125	
B170518-SRM3	Standard Reference Material (1647035, TMDA 70.2 Reference Standard - Bottle3) As		42.73	42.69	µg/L	100% 75-125	
B170518-DUP4	Duplicate, (1708017-09) As	33.15		34.00	µg/L		3% 20
B170518-MS4	Matrix Spike, (1708017-09) As	33.15	202.0	253.7	µg/L	109% 75-125	
B170518-MSD4	Matrix Spike Duplicate, (1708017-09) As	33.15	202.0	257.4	µg/L	111% 75-125	1% 20
B170518-DUP5	Duplicate, (1708017-23) As	27.86		28.93	µg/L		4% 20
B170518-MS5	Matrix Spike, (1708017-23) As	27.86	202.0	250.7	µg/L	110% 75-125	
B170518-MSD5	Matrix Spike Duplicate, (1708017-23) As	27.86	202.0	243.2	µg/L	107% 75-125	3% 20



## Accuracy & Precision Summary

Batch: B170536  
 Lab Matrix: Water  
 Method: SOP BAL-4100

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B170536-BS1</b>	<b>Blank Spike, (1641087)</b>						
	As(III)		5.000	4.805	µg/L	96% 75-125	
	As(V)		5.000	5.190	µg/L	104% 75-125	
	DMAs		3.198	3.144	µg/L	98% 75-125	
<b>B170536-BS2</b>	<b>Blank Spike, (1545039)</b>						
	MMA		5.270	4.596	µg/L	87% 75-125	
<b>B170536-DUP4</b>	<b>Duplicate, (1708047-16)</b>						
	As(III)	0.591		0.605	µg/L		2% 25
	As(V)	0.221		0.205	µg/L		7% 25
	DMAs	0.077		0.081	µg/L		5% 25
	MMA	ND		ND	µg/L		N/C 25
<b>B170536-MS4</b>	<b>Matrix Spike, (1708047-16)</b>						
	As(III)	0.591	25.00	24.98	µg/L	98% 75-125	
	As(V)	0.221	25.00	25.10	µg/L	100% 75-125	
	DMAs	0.077	26.05	24.11	µg/L	92% 75-125	
	MMA	ND	29.32	31.44	µg/L	107% 75-125	
<b>B170536-MSD4</b>	<b>Matrix Spike Duplicate, (1708047-16)</b>						
	As(III)	0.591	25.00	24.64	µg/L	96% 75-125	1% 25
	As(V)	0.221	25.00	24.94	µg/L	99% 75-125	0.6% 25
	DMAs	0.077	26.05	23.77	µg/L	91% 75-125	1% 25
	MMA	ND	29.32	31.46	µg/L	107% 75-125	0.06% 25





## Accuracy & Precision Summary

**Batch:** B170543  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B170543-SRM1</b>	<b>Standard Reference Material (1708036, T221 as SRM)</b>						
	As		17.70	19.18	µg/L	108% 75-125	
	Fe		328.0	312.5	µg/L	95% 75-125	
	Mn		33.60	33.94	µg/L	101% 75-125	
<b>B170543-SRM2</b>	<b>Standard Reference Material (1709001, NIST 1640a as SRM)</b>						
	As		8.075	8.087	µg/L	100% 75-125	
	Fe		36.80	38.80	µg/L	105% 75-125	
	Mn		40.39	40.33	µg/L	100% 75-125	
<b>B170543-DUP1</b>	<b>Duplicate, (1708047-10)</b>						
	Fe	39290		39070	µg/L		0.6% 20
<b>B170543-DUP3</b>	<b>Duplicate, (1708047-10)</b>						
	Mn	5270		5314	µg/L		0.8% 20
<b>B170543-MS1</b>	<b>Matrix Spike, (1708047-10)</b>						
	Fe	39290	1263	39910	µg/L	NR 75-125	
<b>B170543-MS3</b>	<b>Matrix Spike, (1708047-10)</b>						
	Mn	5270	10100	15840	µg/L	105% 75-125	
<b>B170543-MSD1</b>	<b>Matrix Spike Duplicate, (1708047-10)</b>						
	Fe	39290	1263	40660	µg/L	NR 75-125	N/C 20
<b>B170543-MSD3</b>	<b>Matrix Spike Duplicate, (1708047-10)</b>						
	Mn	5270	10100	16120	µg/L	107% 75-125	2% 20
<b>B170543-DUP2</b>	<b>Duplicate, (1708047-26)</b>						
	As	65.77		69.49	µg/L		5% 20
	Fe	77740		78810	µg/L		1% 20
	Mn	1411		1427	µg/L		1% 20



## Accuracy & Precision Summary

**Batch:** B170543  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B170543-MS2</b>	<b>Matrix Spike, (1708047-26)</b>						
	As	65.77	126.3	185.0	µg/L	94% 75-125	
	Fe	77740	1263	79700	µg/L	NR 75-125	
	Mn	1411	126.3	1527	µg/L	NR 75-125	
<b>B170543-MSD2</b>	<b>Matrix Spike Duplicate, (1708047-26)</b>						
	As	65.77	126.3	195.8	µg/L	103% 75-125	6% 20
	Fe	77740	1263	82720	µg/L	NR 75-125	N/C 20
	Mn	1411	126.3	1518	µg/L	NR 75-125	N/C 20



## Accuracy & Precision Summary

Batch: B170544  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B170544-BS1	<b>Blank Spike, (1634056)</b> As		200.0	205.1	µg/L	103% 75-125	
B170544-SRM1	<b>Standard Reference Material (1647035, TMDA 70.2 Reference Standard - Bottle3)</b> As		42.30	43.13	µg/L	102% 75-125	
B170544-DUP1	<b>Duplicate, (1708047-05)</b> As	17.43		18.70	µg/L		7% 20
B170544-MS1	<b>Matrix Spike, (1708047-05)</b> As	17.43	202.0	231.8	µg/L	106% 75-125	
B170544-MSD1	<b>Matrix Spike Duplicate, (1708047-05)</b> As	17.43	202.0	233.4	µg/L	107% 75-125	0.7% 20
B170544-DUP2	<b>Duplicate, (1708047-23)</b> As	82.52		80.06	µg/L		3% 20
B170544-MS2	<b>Matrix Spike, (1708047-23)</b> As	82.52	202.0	295.6	µg/L	105% 75-125	
B170544-MSD2	<b>Matrix Spike Duplicate, (1708047-23)</b> As	82.52	202.0	302.8	µg/L	109% 75-125	2% 20



## Accuracy & Precision Summary

Batch: B170601  
 Lab Matrix: Water  
 Method: EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B170601-SRM1	<b>Standard Reference Material (1708036, T221 as SRM)</b>						
	Fe		328.0	330.8	µg/L	101% 75-125	
	Mn		33.60	35.14	µg/L	105% 75-125	
B170601-SRM2	<b>Standard Reference Material (1709001, NIST 1640a as SRM)</b>						
	Fe		36.80	50.75	µg/L	138% 75-125	
	Mn		40.39	41.92	µg/L	104% 75-125	
B170601-DUP1	<b>Duplicate, (1708017-30)</b>						
	Fe	10410		11190	µg/L		7% 20
	Mn	574.4		609.4	µg/L		6% 20
B170601-MS1	<b>Matrix Spike, (1708017-30)</b>						
	Fe	10410	2525	13000	µg/L	NR 75-125	
	Mn	574.4	252.5	794.0	µg/L	87% 75-125	
B170601-MSD1	<b>Matrix Spike Duplicate, (1708017-30)</b>						
	Fe	10410	2525	13470	µg/L	NR 75-125	N/C 20
	Mn	574.4	252.5	812.9	µg/L	94% 75-125	2% 20



## Accuracy & Precision Summary

**Batch:** B170724  
**Lab Matrix:** Water  
**Method:** EPA 1638 Mod

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
<b>B170724-SRM1</b>	<b>Standard Reference Material (1708036, T221 as SRM)</b>						
	As		17.70	17.92	µg/L	101% 75-125	
<b>B170724-SRM2</b>	<b>Standard Reference Material (1709001, NIST 1640a as SRM)</b>						
	As		8.075	7.941	µg/L	98% 75-125	
<b>B170724-DUP1</b>	<b>Duplicate, (1708047-10)</b>						
	As	1.656		1.669	µg/L		0.8% 20
<b>B170724-MS1</b>	<b>Matrix Spike, (1708047-10)</b>						
	As	1.656	252.5	235.8	µg/L	93% 75-125	
<b>B170724-MSD1</b>	<b>Matrix Spike Duplicate, (1708047-10)</b>						
	As	1.656	252.5	237.0	µg/L	93% 75-125	0.5% 20



## Method Blanks & Reporting Limits

**Batch:** B170491  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units	
B170491-BLK1	-0.019	µg/L	
B170491-BLK2	-0.017	µg/L	
B170491-BLK3	-0.016	µg/L	
B170491-BLK4	-0.022	µg/L	
<b>Average:</b>	<b>-0.019</b>		<b>MDL: 0.007</b>
<b>Limit:</b>	<b>0.040</b>		<b>MRL: 0.040</b>

**Analyte:** Fe

Sample	Result	Units	
B170491-BLK1	-0.10	µg/L	
B170491-BLK2	-0.009	µg/L	
B170491-BLK3	-0.01	µg/L	
B170491-BLK4	-0.05	µg/L	
<b>Average:</b>	<b>-0.04</b>		<b>MDL: 0.28</b>
<b>Limit:</b>	<b>0.85</b>		<b>MRL: 0.85</b>

**Analyte:** Mn

Sample	Result	Units	
B170491-BLK1	-0.017	µg/L	
B170491-BLK2	-0.014	µg/L	
B170491-BLK3	-0.014	µg/L	
B170491-BLK4	-0.017	µg/L	
<b>Average:</b>	<b>-0.016</b>		<b>MDL: 0.021</b>
<b>Limit:</b>	<b>0.063</b>		<b>MRL: 0.063</b>

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1708017, 1708047  
**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Method Blanks & Reporting Limits

**Batch:** B170503  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units
B170503-BLK1	-0.003	µg/L
B170503-BLK2	-0.007	µg/L
B170503-BLK3	-0.011	µg/L
B170503-BLK4	-0.008	µg/L

**Average:** -0.007  
**Limit:** 0.040

**MDL:** 0.007  
**MRL:** 0.040

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1708017, 1708047  
**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Method Blanks & Reporting Limits

**Batch:** B170518  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units
B170518-BLK1	0.015	µg/L
B170518-BLK2	0.025	µg/L
B170518-BLK3	0.018	µg/L
B170518-BLK4	0.014	µg/L

**Average:** 0.018  
**Limit:** 0.080

**MDL:** 0.023  
**MRL:** 0.080





## Method Blanks & Reporting Limits

**Batch:** B170536  
**Matrix:** Water  
**Method:** SOP BAL-4100  
**Analyte:** As(III)

Sample	Result	Units	
B170536-BLK1	0.00	µg/L	
B170536-BLK2	0.00	µg/L	
B170536-BLK3	0.00	µg/L	
B170536-BLK4	0.00	µg/L	
<b>Average:</b>	<b>0.000</b>		<b>MDL:</b> 0.002
<b>Limit:</b>	<b>0.004</b>		<b>MRL:</b> 0.020

**Analyte:** As(V)

Sample	Result	Units	
B170536-BLK1	0.001	µg/L	
B170536-BLK2	0.00	µg/L	
B170536-BLK3	0.0009	µg/L	
B170536-BLK4	0.00	µg/L	
<b>Average:</b>	<b>0.000</b>		<b>MDL:</b> 0.002
<b>Limit:</b>	<b>0.004</b>		<b>MRL:</b> 0.020

**Analyte:** DMAs

Sample	Result	Units	
B170536-BLK1	0.00	µg/L	
B170536-BLK2	0.00	µg/L	
B170536-BLK3	0.00	µg/L	
B170536-BLK4	0.00	µg/L	
<b>Average:</b>	<b>0.000</b>		<b>MDL:</b> 0.003
<b>Limit:</b>	<b>0.006</b>		<b>MRL:</b> 0.021



## Method Blanks & Reporting Limits

**Analyte:** MMAs

<b>Sample</b>	<b>Result</b>	<b>Units</b>	
B170536-BLK1	0.00	µg/L	
B170536-BLK2	0.00	µg/L	
B170536-BLK3	0.00	µg/L	
B170536-BLK4	0.00	µg/L	
<b>Average:</b> 0.000			<b>MDL:</b> 0.003
<b>Limit:</b> 0.006			<b>MRL:</b> 0.023



## Method Blanks & Reporting Limits

**Batch:** B170543  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units	
B170543-BLK1	-0.023	µg/L	
B170543-BLK2	-0.028	µg/L	
B170543-BLK3	-0.026	µg/L	
B170543-BLK4	-0.025	µg/L	
<b>Average:</b>	<b>-0.025</b>		<b>MDL:</b> 0.007
<b>Limit:</b>	<b>0.040</b>		<b>MRL:</b> 0.040

**Analyte:** Fe

Sample	Result	Units	
B170543-BLK1	0.10	µg/L	
B170543-BLK2	0.07	µg/L	
B170543-BLK3	0.05	µg/L	
B170543-BLK4	0.04	µg/L	
<b>Average:</b>	<b>0.07</b>		<b>MDL:</b> 0.28
<b>Limit:</b>	<b>0.86</b>		<b>MRL:</b> 0.86

**Analyte:** Mn

Sample	Result	Units	
B170543-BLK1	-0.005	µg/L	
B170543-BLK2	-0.008	µg/L	
B170543-BLK3	-0.009	µg/L	
B170543-BLK4	-0.007	µg/L	
<b>Average:</b>	<b>-0.007</b>		<b>MDL:</b> 0.021
<b>Limit:</b>	<b>0.064</b>		<b>MRL:</b> 0.064

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1708017, 1708047  
**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Method Blanks & Reporting Limits

**Batch:** B170544  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units
B170544-BLK1	-0.033	µg/L
B170544-BLK2	-0.015	µg/L
B170544-BLK3	-0.003	µg/L
B170544-BLK4	-0.011	µg/L

**Average:** -0.016  
**Limit:** 0.080

**MDL:** 0.023  
**MRL:** 0.080



## Method Blanks & Reporting Limits

**Batch:** B170601  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** Fe

Sample	Result	Units	
B170601-BLK1	0.13	µg/L	
B170601-BLK2	0.30	µg/L	
B170601-BLK3	0.17	µg/L	
B170601-BLK4	0.12	µg/L	
<b>Average:</b>	<b>0.18</b>		<b>MDL: 0.28</b>
<b>Limit:</b>	<b>0.85</b>		<b>MRL: 0.85</b>

**Analyte:** Mn

Sample	Result	Units	
B170601-BLK1	-0.007	µg/L	
B170601-BLK2	-0.002	µg/L	
B170601-BLK3	-0.005	µg/L	
B170601-BLK4	-0.008	µg/L	
<b>Average:</b>	<b>-0.006</b>		<b>MDL: 0.021</b>
<b>Limit:</b>	<b>0.063</b>		<b>MRL: 0.063</b>

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1708017, 1708047  
**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Method Blanks & Reporting Limits

**Batch:** B170724  
**Matrix:** Water  
**Method:** EPA 1638 Mod  
**Analyte:** As

Sample	Result	Units
B170724-BLK1	-0.005	µg/L
B170724-BLK2	-0.006	µg/L
B170724-BLK3	-0.006	µg/L
B170724-BLK4	-0.006	µg/L

**Average:** -0.006  
**Limit:** 0.040

**MDL:** 0.007  
**MRL:** 0.040



## Sample Containers

<b>Lab ID:</b> 1708017-01		<b>Report Matrix:</b> Water			<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW001A-10-E4		<b>Sample Type:</b> Sample			<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2 Cooler 1

<b>Lab ID:</b> 1708017-02		<b>Report Matrix:</b> Water			<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW001A-10-E4		<b>Sample Type:</b> Sample			<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2 Cooler 1
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided	Cooler 1
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided	Cooler 1

<b>Lab ID:</b> 1708017-03		<b>Report Matrix:</b> Water			<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW001B-10-E4		<b>Sample Type:</b> Sample			<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2 Cooler 1

<b>Lab ID:</b> 1708017-04		<b>Report Matrix:</b> Water			<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW001B-10-E4		<b>Sample Type:</b> Sample			<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2 Cooler 1
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided	Cooler 1
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided	Cooler 1

<b>Lab ID:</b> 1708017-05		<b>Report Matrix:</b> Water			<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW002A-10-E4		<b>Sample Type:</b> Sample			<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2 Cooler 1



## Sample Containers

<b>Lab ID:</b> 1708017-06		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW002A-10-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 1
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 1

<b>Lab ID:</b> 1708017-07		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW002B-10-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1

<b>Lab ID:</b> 1708017-08		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW002B-10-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 1
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 1

<b>Lab ID:</b> 1708017-09		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW003A-10-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1





## Sample Containers

<b>Lab ID:</b> 1708017-10		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW003A-10-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 1
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 1

<b>Lab ID:</b> 1708017-11		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW003B-10-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1

<b>Lab ID:</b> 1708017-12		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW003B-10-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 1
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 1

<b>Lab ID:</b> 1708017-13		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW004A-10-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1



## Sample Containers

<b>Lab ID:</b> 1708017-14		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPW004A-10-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 1
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 1

<b>Lab ID:</b> 1708017-15		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPWSMB-10-E4		<b>Sample Type:</b> Equip. Blank				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1

<b>Lab ID:</b> 1708017-16		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> WCTPWSMB-10-E4		<b>Sample Type:</b> Equip. Blank				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1

<b>Lab ID:</b> 1708017-17		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> MW011-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1

<b>Lab ID:</b> 1708017-18		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/21/2017	
<b>Sample:</b> MW011-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 1

<b>Lab ID:</b> 1708017-19		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/20/2017	
<b>Sample:</b> MW004-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 2



## Sample Containers

Lab ID:	Sample:	Report Matrix:	Sample Type:	Collected:
1708017-20	MW004-E4	Water	Sample	02/20/2017
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)
				<b>P-Lot</b>
				1653046
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler 2
1708017-21	MW002-E4	Water	Sample	02/20/2017
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)
				<b>P-Lot</b>
				1653046
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler 2
1708017-22	MW002-E4	Water	Sample	02/20/2017
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)
				<b>P-Lot</b>
				1653046
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler 2
1708017-23	MW001-E4	Water	Sample	02/20/2017
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)
				<b>P-Lot</b>
				1653046
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler 2
1708017-24	MW001-E4	Water	Sample	02/20/2017
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)
				<b>P-Lot</b>
				1653046
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler 2
1708017-25	HC002-E4	Water	Sample	02/21/2017
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)
				<b>P-Lot</b>
				1653046
				<b>pH</b>
				<2
				<b>Ship. Cont.</b>
				Cooler 2



## Sample Containers

<b>Lab ID:</b> 1708017-26			<b>Report Matrix:</b> Water			<b>Collected:</b> 02/21/2017	
<b>Sample:</b> HC002-E4			<b>Sample Type:</b> Sample			<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 2
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 2
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 2

<b>Lab ID:</b> 1708017-27			<b>Report Matrix:</b> Water			<b>Collected:</b> 02/21/2017	
<b>Sample:</b> B001R-E4			<b>Sample Type:</b> Sample			<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 2

<b>Lab ID:</b> 1708017-28			<b>Report Matrix:</b> Water			<b>Collected:</b> 02/21/2017	
<b>Sample:</b> B001R-E4			<b>Sample Type:</b> Sample			<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 2
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 2
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided		Cooler 2

<b>Lab ID:</b> 1708017-29			<b>Report Matrix:</b> Water			<b>Collected:</b> 02/21/2017	
<b>Sample:</b> B003R-E4			<b>Sample Type:</b> Sample			<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 2

<b>Lab ID:</b> 1708017-30			<b>Report Matrix:</b> Water			<b>Collected:</b> 02/21/2017	
<b>Sample:</b> B003R-E4			<b>Sample Type:</b> Sample			<b>Received:</b> 02/22/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1653046	<2	Cooler 2



## Sample Containers

<b>Lab ID:</b> 1708047-01 <b>Sample:</b> B005R-E4			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 02/22/2017 <b>Received:</b> 02/24/2017		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler
<b>Lab ID:</b> 1708047-02 <b>Sample:</b> B005R-E4			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 02/22/2017 <b>Received:</b> 02/24/2017		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler
<b>Lab ID:</b> 1708047-03 <b>Sample:</b> B505R-E4			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 02/22/2017 <b>Received:</b> 02/24/2017		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler
<b>Lab ID:</b> 1708047-04 <b>Sample:</b> B505R-E4			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 02/22/2017 <b>Received:</b> 02/24/2017		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler
<b>Lab ID:</b> 1708047-05 <b>Sample:</b> MW003R-E4			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 02/22/2017 <b>Received:</b> 02/24/2017		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler
<b>Lab ID:</b> 1708047-06 <b>Sample:</b> MW003R-E4			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample		<b>Collected:</b> 02/22/2017 <b>Received:</b> 02/24/2017		
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler



## Sample Containers

Lab ID: 1708047-07		Report Matrix: Water			Collected: 02/22/2017	
Sample: MW005R-E4		Sample Type: Sample			Received: 02/24/2017	
Des	Container	Size	Lot	Preservation	P-Lot	pH Ship. Cont.
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2 Cooler
Lab ID: 1708047-08		Report Matrix: Water			Collected: 02/22/2017	
Sample: MW005R-E4		Sample Type: Sample			Received: 02/24/2017	
Des	Container	Size	Lot	Preservation	P-Lot	pH Ship. Cont.
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2 Cooler
Lab ID: 1708047-09		Report Matrix: Water			Collected: 02/22/2017	
Sample: MW006R-E4		Sample Type: Sample			Received: 02/24/2017	
Des	Container	Size	Lot	Preservation	P-Lot	pH Ship. Cont.
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2 Cooler
Lab ID: 1708047-10		Report Matrix: Water			Collected: 02/22/2017	
Sample: MW006R-E4		Sample Type: Sample			Received: 02/24/2017	
Des	Container	Size	Lot	Preservation	P-Lot	pH Ship. Cont.
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2 Cooler
Lab ID: 1708047-11		Report Matrix: Water			Collected: 02/22/2017	
Sample: MW010-E4		Sample Type: Sample			Received: 02/24/2017	
Des	Container	Size	Lot	Preservation	P-Lot	pH Ship. Cont.
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2 Cooler
Lab ID: 1708047-12		Report Matrix: Water			Collected: 02/22/2017	
Sample: MW010-E4		Sample Type: Sample			Received: 02/24/2017	
Des	Container	Size	Lot	Preservation	P-Lot	pH Ship. Cont.
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2 Cooler
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided	Cooler
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided	Cooler



## Sample Containers

**Lab ID:** 1708047-13  
**Sample:** MW013-E4  
**Report Matrix:** Water  
**Sample Type:** Sample  
**Collected:** 02/22/2017  
**Received:** 02/24/2017

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler

**Lab ID:** 1708047-14  
**Sample:** MW013-E4  
**Report Matrix:** Water  
**Sample Type:** Sample  
**Collected:** 02/22/2017  
**Received:** 02/24/2017

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided		Cooler
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided		Cooler

**Lab ID:** 1708047-15  
**Sample:** MW007-E4  
**Comments:** Sample not received.  
**Report Matrix:** Water  
**Sample Type:** Sample  
**Collected:** 02/22/2017  
**Received:** 02/24/2017

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler

**Lab ID:** 1708047-16  
**Sample:** MW007-E4  
**Comments:** -A container not received  
**Report Matrix:** Water  
**Sample Type:** Sample  
**Collected:** 02/22/2017  
**Received:** 02/24/2017

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided		Cooler
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided		Cooler

**Lab ID:** 1708047-17  
**Sample:** MW507-E4  
**Report Matrix:** Water  
**Sample Type:** Sample  
**Collected:** 02/22/2017  
**Received:** 02/24/2017

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler



## Sample Containers

<b>Lab ID:</b> 1708047-18		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/22/2017	
<b>Sample:</b> MW507-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/24/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided		Cooler
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided		Cooler

<b>Lab ID:</b> 1708047-19		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/23/2017	
<b>Sample:</b> MW008-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/24/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler

<b>Lab ID:</b> 1708047-20		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/23/2017	
<b>Sample:</b> MW008-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/24/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler

<b>Lab ID:</b> 1708047-21		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/23/2017	
<b>Sample:</b> MW012-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/24/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler

<b>Lab ID:</b> 1708047-22		<b>Report Matrix:</b> Water				<b>Collected:</b> 02/22/2017	
<b>Sample:</b> MW012-E4		<b>Sample Type:</b> Sample				<b>Received:</b> 02/24/2017	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided		Cooler
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided		Cooler





## Sample Containers

<b>Lab ID:</b> 1708047-23	<b>Report Matrix:</b> Water	<b>Collected:</b> 02/23/2017					
<b>Sample:</b> MW009-E4	<b>Sample Type:</b> Sample	<b>Received:</b> 02/24/2017					
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler

<b>Lab ID:</b> 1708047-24	<b>Report Matrix:</b> Water	<b>Collected:</b> 02/22/2017					
<b>Sample:</b> MW009-E4	<b>Sample Type:</b> Sample	<b>Received:</b> 02/24/2017					
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler
B	Vacutainer	10mL	16-0257	EDTA (PP)	Not Provided		Cooler
C	EXTRA_VOL	10mL	16-0257	EDTA (PP)	Not Provided		Cooler

<b>Lab ID:</b> 1708047-25	<b>Report Matrix:</b> Water	<b>Collected:</b> 02/23/2017					
<b>Sample:</b> B006R-E4	<b>Sample Type:</b> Sample	<b>Received:</b> 02/24/2017					
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler

<b>Lab ID:</b> 1708047-26	<b>Report Matrix:</b> Water	<b>Collected:</b> 02/23/2017					
<b>Sample:</b> B006R-E4	<b>Sample Type:</b> Sample	<b>Received:</b> 02/24/2017					
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle HDPE ICP-W	125mL	17-0007	1% HNO3 (BAL)	1708029	<2	Cooler

**Project ID:** GSI-PR1601a Waters  
**PM:** Ben Wozniak



BAL Report 1708017, 1708047  
**Client PM:** Erin Carroll Hughes  
**Client Project:** GSI-PR001, Rev.

## Shipping Containers

### Cooler 1

**Received:** February 22, 2017 10:45  
**Tracking No:** None via Customer Drop-Off  
**Coolant Type:** Blue Ice  
**Temperature:** 2.6 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR #5

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

### Cooler 2

**Received:** February 22, 2017 10:45  
**Tracking No:** None via Customer Drop-Off  
**Coolant Type:** Blue Ice  
**Temperature:** 4.8 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR #5

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

## Shipping Containers

### Cooler

**Received:** February 24, 2017 13:50  
**Tracking No:** None via Customer Drop-Off  
**Coolant Type:** Blue Ice  
**Temperature:** 3.3 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No  
**Comments:** IR #8

**Custody seals present?** No  
**Custody seals intact?** No  
**COC present?** Yes

GSI  
55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

# Chain of Custody Record

Field Sample ID(s) 708017, 170804

**Client Contact**  
**Project Name:** Parcel 15 - POT  
**Project # or PO #:** 603.002.014  
**Project Manager:** Erin Hughes  
**Phone #:** 971-200-8528  
**Report to email:** echughes@gsiws.com

**For Lab Use Only:**  
 SDG: \_\_\_\_\_  
 Custody Seals intact? \_\_\_\_\_  
 Hand delivered? \_\_\_\_\_  
 Cooler Temp: \_\_\_\_\_ °C  
 Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Analysis Turnaround Time:**  
 Standard 21 day TAT on Most Analyses  
 Rush 5 day on Dissolved Metals in Porewater

**Laboratory**

**TestAmerica**

**Brooks**

**Analysis Requested**

SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)
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**Lab PM**

Brooks  
Ben Wozniak  
206-753-6158

TestAmerica  
Sheri Cruz  
253-248-4960

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
WCTPW001A-10-E4	2/21	1650	1503	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	R=Rush
w CT PW001B-10-E4	2/21	1705	11,200	G	PW	13	X	X	X	X	X	X	X	X	X	X	X		X	R	*	*=1f
WCTPW002A-10-E4	2/21	1750	14916	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	diss As 736 ug/L
WCTPW002B-10-E4	2/21	1820	16082	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	
WCTPW003A-10-E4	2/21	1850	1858	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	
WCTPW003B-10-E4	2/21	1940	3435	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	
WCTPW004A-10-E4	2/21	2005	596	G	PW	9	X	X	X	X							X	X	X	R	*	
WCTPWSMB-E4	2/21	2040	0	G	MB	7	X	X	X	X							X	X	X			
MW011-E4	2/21	1715		G	GW	6	X	X	X	X									X	X		

**Possible Hazard Identification:**  
 Are samples hazardous?  No  
 If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic

select hazard(s):  
 Relinquished by: Kevin Fowler Date/Time: 2/22/17 1040  
 Relinquished by: [Signature] Date/Time: 2/22/17 1045

Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive frozen for 1 year

Received by: B. Hall B. Gull SRA TM Date/Time: 2-22-17 1040  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received in Laboratory by: [Signature] Date/Time: 2/22/17 1045

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

**GSI**  
 55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700

### Chain of Custody Record

Field Sampler(s):  
 GSI

**Client Contact**  
 Project Name: Parcel 16 - POT  
 Project # or PO #: 603.002.014  
 Project Manager: Erin Hughes  
 Phone #: 971-200-8528  
 Report to email: echughes@gaiws.com

**For Lab Use Only:**  
 SDG: \_\_\_\_\_  
 Custody Seals intact?  
 Hand delivered?  
 Cooler Temp: \_\_\_\_\_ °C  
 Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Laboratory**  
 TestAmerica Brooks

**Lab PM**  
 Brooks  
 Ben Wozniak  
 206-753-6158

**Analysis Turnaround Time:**  
 Standard 21 day TAT on Most Analyses  
 Rush 5 day on Dissolved Metals in Porewater

**Analysis Requested**

SM6310B: Total Organic Carbon	SM9310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)**	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	385.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)**	Arsenic Speciation: As (III)/As(V) (dissolved; field filtered)
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TestAmerica  
 Sheri Cruz  
 253-248-4960

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.
MWOOD4-EY	2/21/17	1540	80	G	U	
MWOODZ-EY	↓	1740	807	↓	↓	
MWOOD1-EY	↓	1715	762	↓	↓	
HCOOZ-EY	2/21/17	1055	515	↓	↓	
BDOO1R-EY	↓	1050	1217	↓	↓	
BDOO3R-EY	↓	1315	3481	↓	↓	

cooler 1  
 TB Cooler IR4 Cor 5.2 Unc 5.8  
 Cooler Dsc lg. blue wrap Lab  
 WebPacks Packing bubble  
 cli drop w/0 CS

**Possible Hazard Identification:**  
 Are samples hazardous?  No  
 If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
 select hazard(s):  
 Relinquished by: Kenee Foster Date/Time: 2/21/17 1430  
 Relinquished by: [Signature] Date/Time: 2/22/17 1030  
 Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
 Received by: [Signature] Date/Time: 2/21/17 1429  
 Received by: [Signature] Date/Time: \_\_\_\_\_  
 Received in Laboratory by: [Signature] Date/Time: 2/22/17 1155

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

**GSI**  
Water Laboratory, Inc.  
55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

# Chain of Custody Record

**Client Contact**  
Project Name: Parcel 15 - POT  
Project # or PO #: 603.002.014  
Project Manager: Erin Hughes  
Phone #: 971-200-8528  
Report to email: echughes@gsws.com

**For Lab Use Only:**  
SDG: \_\_\_\_\_  
Custody Seals intact?  
Hand delivered?  
Cooler Temp: \_\_\_\_\_ °C  
Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Analysis Turnaround Time:**  
Standard 21 day TAT on Most Analyses  
Rush 5 day on Dissolved Metals in Porewater

**Laboratory**

**TestAmerica** | **Brooks**

**Analysis Requested**

SM5310B: Total Organic Carbon  
SM5310B: Dissolved Organic Carbon (field filtered)  
SM4500 S 2D: Sulfide (dissolved, field filtered)  
SM2540D: Total Suspended Solids (TSS)  
6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)\*  
300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)\*\*  
300.0: Nitrate and Nitrite (dissolved; field filtered)  
SM2320B: Alkalinity (field filtered)\*\*\*  
365.1: Major Anions (Orthophosphate; dissolved; field filtered)  
6020A: Arsenic (total)  
6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)  
8260D SIM: Pentachlorophenol  
1638M: Arsenic (total)  
1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)\*\*\*  
Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)

**Lab PM**  
Brooks  
Ben Wozniak  
206-753-6158

TestAmerica  
Sheri Cruz  
253-248-4960

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved, field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
B005R-E4	2/21/17	1155	483	G	N		X	X	X	X						X	X	X	X	X		
B505R-E4		1130	483				X	X	X	X						X	X	X	X	X		
MW003R-E4		1400	683				X	X	X	X						X	X	X	X	X		
MW005R-E4		1500	389				X	X	X	X						X	X	X	X	X		
MW006R-E4		1605	617				X	X	X	X						X	X	X	X	X		
MW010-E4	1545	1640 <sup>15</sup>	1126				X	X	X	X	X	X	X	X	X				X	X	X	
MW013-E4		1445	631				X	X	X	X	X	X	X	X	X	X	X	X	X	X		
MW007-E4		1700	187				X	X	X	X	X	X	X	X	X	X	X	X	X	X		
MW507-E4	✓	1715	187	↓	↓		X	X	X	X	X	X	X	X	X				X	X		
MW008-E4	2/23/17	1150	1800	G	N		X	X	X	X	X	X	X	X	X				X	X	X	
MW012-E4	↓	1125	1010	↓	↓		X	X	X	X	X	X	X	X	X				X	X	X	
MW009-E4	↓	1245	919	↓	↓		X	X	X	X	X	X	X	X	X				X	X	X	

**Possible Hazard Identification:**  
Are samples hazardous?  No  
If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic  
select hazard(s):  
Relinquished by: Venue Fowle Date/Time: 2/23/17 1430  
Relinquished by: Tom [Signature] Date/Time: 2/24/17 1350  
Shipped Via:  UPS  Fed-Ex  USPS  Other  
Tracking #:

**Sample Disposal** (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
Received by: M. Bruce McCarroll Date/Time: 2/23/17 1428  
Received by: [Signature] Date/Time: 2/24/17 13:50  
Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Special Instructions/QC Requirements**  
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
Please contact Cindy Ryals at 971-200-8531 with any questions.



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING


## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-65878-1  
Client Project/Site: Parcel 15 POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Erin Carroll Hughes



Authorized for release by:  
3/8/2017 2:02:40 PM

Sheri Cruz, Project Manager I  
(253)922-2310  
[sheri.cruz@testamericainc.com](mailto:sheri.cruz@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

**Job ID: 580-65878-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-65878-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 2/7/2017 12:17 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.0° C and 3.7° C.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0: Sample contained high concentrations of Chloride and Sulfate. Dilutions were required to prevent damage to the columns and to unmask other analytes. BWSW001-E4 (580-65878-7)

Method(s) 300.0: Due to the high levels of Chloride and Sulfate, dilutions were utilized to prevent damage to the instrument and to try to unmask other analytes.

BWSW001-E4 (580-65878-7)

Method(s) SM 4500 S2 D: 4500 S2 D: 361702. The matrix spike / matrix spike duplicate (MS/MSD) recoveries were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method SM5310B DOC: there was a hit in the method blank above the MDL but less than 1/2 the RL.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

**Client Sample ID: OF2-E4**  
**Date Collected: 02/06/17 17:30**  
**Date Received: 02/07/17 12:17**

**Lab Sample ID: 580-65878-1**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>2.1</b>		1.0	0.19	mg/L			02/25/17 19:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			02/11/17 14:45	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Dissolved Organic Carbon</b>	<b>1.9</b>	<b>F1 B</b>	1.0	0.19	mg/L			02/26/17 02:05	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

**Client Sample ID: OF3-E4**  
**Date Collected: 02/06/17 18:10**  
**Date Received: 02/07/17 12:17**

**Lab Sample ID: 580-65878-2**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	2.1		1.0	0.19	mg/L			02/25/17 19:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	14		2.0	2.0	mg/L			02/11/17 14:45	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.0	B	1.0	0.19	mg/L			02/26/17 02:05	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

**Client Sample ID: WCTSW001B-E4**

**Lab Sample ID: 580-65878-3**

**Date Collected: 02/06/17 17:10**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	17		5.0	1.4	ug/L		03/06/17 07:59	03/06/17 15:56	5

### Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.0	J	5.0	1.4	ug/L		03/06/17 09:14	03/06/17 14:26	5
Iron	750		200	29	ug/L		03/06/17 09:14	03/06/17 14:26	5
Manganese	130		10	1.8	ug/L		03/06/17 09:14	03/06/17 14:26	5

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	6.3		1.0	0.19	mg/L			02/25/17 19:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	190		2.0	2.0	mg/L			02/11/17 14:45	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			02/08/17 10:29	1
Nitrite as N	ND		0.40	0.080	mg/L			02/08/17 10:29	1
Chloride	450		9.0	0.40	mg/L			02/08/17 13:22	10
Nitrate as N	ND		0.20	0.020	mg/L			02/08/17 10:29	1
Bromide	ND		0.50	0.060	mg/L			02/08/17 10:29	1
Sulfate	61		1.2	0.26	mg/L			02/08/17 10:29	1
Sulfide	ND		0.050	0.0070	mg/L			02/09/17 20:48	1
Dissolved Organic Carbon	4.5	B	1.0	0.19	mg/L			02/26/17 02:05	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			02/08/17 08:34	1
Alkalinity	62		5.0	5.0	mg/L			02/09/17 12:32	1
Bicarbonate Alkalinity as CaCO3	62		5.0	5.0	mg/L			02/09/17 12:32	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/09/17 12:32	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/09/17 12:32	1

TestAmerica Seattle

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

**Client Sample ID: WCTSW002B-E4**

**Lab Sample ID: 580-65878-4**

**Date Collected: 02/06/17 18:00**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>5.7</b>		1.0	0.19	mg/L			02/25/17 19:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>51</b>		2.0	2.0	mg/L			02/11/17 14:45	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			02/08/17 10:45	1
Nitrite as N	ND		0.40	0.080	mg/L			02/08/17 10:45	1
<b>Chloride</b>	<b>250</b>		9.0	0.40	mg/L			02/08/17 13:37	10
Nitrate as N	ND		0.20	0.020	mg/L			02/08/17 10:45	1
Bromide	ND		0.50	0.060	mg/L			02/08/17 10:45	1
<b>Sulfate</b>	<b>32</b>		1.2	0.26	mg/L			02/08/17 10:45	1
Sulfide	ND		0.050	0.0070	mg/L			02/09/17 20:48	1
<b>Dissolved Organic Carbon</b>	<b>4.5</b>	<b>B</b>	1.0	0.19	mg/L			02/26/17 02:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			02/08/17 08:34	1
<b>Alkalinity</b>	<b>62</b>		5.0	5.0	mg/L			02/09/17 12:32	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>62</b>		5.0	5.0	mg/L			02/09/17 12:32	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/09/17 12:32	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/09/17 12:32	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

**Client Sample ID: WCTSW003B-E4**

**Lab Sample ID: 580-65878-5**

**Date Collected: 02/06/17 18:30**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>5.3</b>		1.0	0.19	mg/L			02/25/17 19:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>54</b>		2.0	2.0	mg/L			02/11/17 14:45	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			02/08/17 11:00	1
Nitrite as N	ND		0.40	0.080	mg/L			02/08/17 11:00	1
<b>Chloride</b>	<b>360</b>		9.0	0.40	mg/L			02/08/17 13:52	10
<b>Nitrate as N</b>	<b>1.1</b>		0.20	0.020	mg/L			02/08/17 11:00	1
<b>Bromide</b>	<b>1.0</b>		0.50	0.060	mg/L			02/08/17 11:00	1
<b>Sulfate</b>	<b>54</b>		1.2	0.26	mg/L			02/08/17 11:00	1
Sulfide	ND		0.050	0.0070	mg/L			02/09/17 20:48	1
<b>Dissolved Organic Carbon</b>	<b>4.9</b>	<b>B</b>	1.0	0.19	mg/L			02/26/17 02:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			02/08/17 08:34	1
<b>Alkalinity</b>	<b>61</b>		5.0	5.0	mg/L			02/09/17 12:32	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>61</b>		5.0	5.0	mg/L			02/09/17 12:32	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/09/17 12:32	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/09/17 12:32	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

**Client Sample ID: WCTSW004B-E4**

**Lab Sample ID: 580-65878-6**

**Date Collected: 02/06/17 19:15**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.11		0.089	0.089	ug/L		02/09/17 11:20	02/09/17 21:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	80		44 - 125	02/09/17 11:20	02/09/17 21:05	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	4.9		1.0	0.19	mg/L			02/25/17 19:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	50		2.0	2.0	mg/L			02/11/17 14:45	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.7	B	1.0	0.19	mg/L			02/26/17 02:05	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

**Client Sample ID: BWSW001-E4**

**Lab Sample ID: 580-65878-7**

**Date Collected: 02/06/17 14:15**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>1.6</b>		1.0	0.19	mg/L			02/25/17 19:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>7.4</b>		2.0	2.0	mg/L			02/11/17 14:45	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		20	3.0	mg/L			02/08/17 11:16	100
Nitrite as N	ND		40	8.0	mg/L			02/08/17 11:16	100
<b>Chloride</b>	<b>16000</b>		900	40	mg/L			02/08/17 14:08	1000
Nitrate as N	ND		20	2.0	mg/L			02/08/17 11:16	100
<b>Bromide</b>	<b>120</b>		50	6.0	mg/L			02/08/17 11:16	100
<b>Sulfate</b>	<b>6300</b>		120	26	mg/L			02/08/17 11:16	100
Sulfide	ND		0.050	0.0070	mg/L			02/09/17 20:48	1
<b>Dissolved Organic Carbon</b>	<b>1.5</b>	<b>B</b>	1.0	0.19	mg/L			02/26/17 02:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>ortho-Phosphate</b>	<b>0.17</b>		0.10	0.10	mg/L			02/08/17 08:34	1
<b>Alkalinity</b>	<b>95</b>		5.0	5.0	mg/L			02/09/17 12:32	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>95</b>		5.0	5.0	mg/L			02/09/17 12:32	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/09/17 12:32	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/09/17 12:32	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

**Client Sample ID: USSW001-E4**

**Lab Sample ID: 580-65878-8**

**Date Collected: 02/06/17 11:40**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>5.4</b>		1.0	0.19	mg/L			02/25/17 19:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>11</b>		2.0	2.0	mg/L			02/11/17 14:45	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Fluoride</b>	<b>0.060</b>	<b>J F1</b>	0.20	0.030	mg/L			02/08/17 09:43	1
Nitrite as N	ND	F1	0.40	0.080	mg/L			02/08/17 09:43	1
<b>Chloride</b>	<b>9.1</b>	<b>F1</b>	0.90	0.040	mg/L			02/08/17 09:43	1
<b>Nitrate as N</b>	<b>1.5</b>	<b>F1</b>	0.20	0.020	mg/L			02/08/17 09:43	1
Bromide	ND	F1	0.50	0.060	mg/L			02/08/17 09:43	1
<b>Sulfate</b>	<b>6.8</b>	<b>F1</b>	1.2	0.26	mg/L			02/08/17 09:43	1
Sulfide	ND		0.050	0.0070	mg/L			02/09/17 20:48	1
<b>Dissolved Organic Carbon</b>	<b>4.5</b>	<b>B</b>	1.0	0.19	mg/L			02/26/17 02:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			02/08/17 08:35	1
<b>Alkalinity</b>	<b>64</b>		5.0	5.0	mg/L			02/09/17 12:32	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>64</b>		5.0	5.0	mg/L			02/09/17 12:32	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/09/17 12:32	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/09/17 12:32	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-238069/1-A**  
**Matrix: Water**  
**Analysis Batch: 238082**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 238069**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.080	0.080	ug/L		02/09/17 11:20	02/09/17 18:52	1
Surrogate	MB %Recovery	MB Qualifier	Limits						
2,4,6-Tribromophenol	85		44 - 125						
							Prepared	Analyzed	Dil Fac
							02/09/17 11:20	02/09/17 18:52	1

**Lab Sample ID: LCS 580-238069/2-A**  
**Matrix: Water**  
**Analysis Batch: 238082**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 238069**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Pentachlorophenol	4.00	4.01		ug/L		100	30 - 149		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
2,4,6-Tribromophenol	81		44 - 125						
							%Rec.	RPD	Limit
								4	20

**Lab Sample ID: LCSD 580-238069/3-A**  
**Matrix: Water**  
**Analysis Batch: 238082**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 238069**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	4.00	3.87		ug/L		97	30 - 149	4	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	82		44 - 125						
							%Rec.	RPD	Limit
								4	20

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 580-239769/21-A**  
**Matrix: Water**  
**Analysis Batch: 239851**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239769**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.27	ug/L		03/06/17 07:59	03/06/17 14:53	1

**Lab Sample ID: LCS 580-239769/22-A**  
**Matrix: Water**  
**Analysis Batch: 239851**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239769**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Arsenic	4000	4000		ug/L		100	80 - 120		
							%Rec.	RPD	Limit
								2	20

**Lab Sample ID: LCSD 580-239769/23-A**  
**Matrix: Water**  
**Analysis Batch: 239851**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239769**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	4000	4060		ug/L		102	80 - 120	2	20
							%Rec.	RPD	Limit
								2	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 580-239770/21-A**  
**Matrix: Water**  
**Analysis Batch: 239851**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239770**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.27	ug/L		03/06/17 09:14	03/06/17 13:49	1
Iron	ND		40	5.8	ug/L		03/06/17 09:14	03/06/17 13:49	1
Manganese	ND		2.0	0.35	ug/L		03/06/17 09:14	03/06/17 13:49	1

**Lab Sample ID: LCS 580-239770/22-A**  
**Matrix: Water**  
**Analysis Batch: 239851**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239770**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4000	4030		ug/L		101	80 - 120
Iron	22000	23100		ug/L		105	80 - 120
Manganese	1000	1020		ug/L		102	80 - 120

**Lab Sample ID: LCSD 580-239770/23-A**  
**Matrix: Water**  
**Analysis Batch: 239851**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239770**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4000	4040		ug/L		101	80 - 120	0	20
Iron	22000	23400		ug/L		106	80 - 120	1	20
Manganese	1000	1020		ug/L		102	80 - 120	0	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 580-238035/3**  
**Matrix: Water**  
**Analysis Batch: 238035**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.40	0.080	mg/L			02/08/17 08:48	1
Nitrate as N	ND		0.20	0.020	mg/L			02/08/17 08:48	1

**Lab Sample ID: LCS 580-238035/4**  
**Matrix: Water**  
**Analysis Batch: 238035**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	5.00	4.55		mg/L		91	90 - 110
Nitrate as N	5.00	4.82		mg/L		96	90 - 110

**Lab Sample ID: LCSD 580-238035/5**  
**Matrix: Water**  
**Analysis Batch: 238035**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	5.00	4.88		mg/L		98	90 - 110	7	15
Nitrate as N	5.00	4.82		mg/L		96	90 - 110	0	15

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: MB 580-238036/3**

**Matrix: Water**

**Analysis Batch: 238036**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.20	0.030	mg/L			02/08/17 08:48	1
Chloride	ND		0.90	0.040	mg/L			02/08/17 08:48	1
Bromide	ND		0.50	0.060	mg/L			02/08/17 08:48	1
Sulfate	ND		1.2	0.26	mg/L			02/08/17 08:48	1

**Lab Sample ID: LCS 580-238036/4**

**Matrix: Water**

**Analysis Batch: 238036**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	4.86		mg/L		97	90 - 110
Chloride	50.0	47.0		mg/L		94	90 - 110
Bromide	10.0	9.67		mg/L		97	90 - 110
Sulfate	50.0	48.2		mg/L		96	90 - 110

**Lab Sample ID: LCSD 580-238036/5**

**Matrix: Water**

**Analysis Batch: 238036**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	4.87		mg/L		97	90 - 110	0	15
Chloride	50.0	46.9		mg/L		94	90 - 110	0	15
Bromide	10.0	9.66		mg/L		97	90 - 110	0	15
Sulfate	50.0	48.3		mg/L		97	90 - 110	0	15

**Lab Sample ID: 580-65878-8 MS**

**Matrix: Water**

**Analysis Batch: 238035**

**Client Sample ID: USSW001-E4**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	ND	F1	5.00	6.41	F1	mg/L		128	90 - 110
Nitrate as N	1.5	F1	5.00	8.00	F1	mg/L		130	90 - 110

**Lab Sample ID: 580-65878-8 MSD**

**Matrix: Water**

**Analysis Batch: 238035**

**Client Sample ID: USSW001-E4**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	ND	F1	5.00	6.28	F1	mg/L		126	90 - 110	2	15
Nitrate as N	1.5	F1	5.00	7.75	F1	mg/L		125	90 - 110	3	15

**Lab Sample ID: 580-65878-8 MS**

**Matrix: Water**

**Analysis Batch: 238036**

**Client Sample ID: USSW001-E4**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.060	J F1	5.00	6.39	F1	mg/L		127	90 - 110
Chloride	9.1	F1	50.0	70.5	F1	mg/L		123	90 - 110
Bromide	ND	F1	10.0	12.3	F1	mg/L		123	90 - 110

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 580-65878-8 MS**  
**Matrix: Water**  
**Analysis Batch: 238036**

**Client Sample ID: USSW001-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	6.8	F1	50.0	73.1	F1	mg/L		133	90 - 110

**Lab Sample ID: 580-65878-8 MSD**  
**Matrix: Water**  
**Analysis Batch: 238036**

**Client Sample ID: USSW001-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.060	J F1	5.00	6.17	F1	mg/L		122	90 - 110	4	15
Chloride	9.1	F1	50.0	68.0	F1	mg/L		118	90 - 110	4	15
Bromide	ND	F1	10.0	11.8	F1	mg/L		118	90 - 110	4	15
Sulfate	6.8	F1	50.0	70.7	F1	mg/L		128	90 - 110	3	15

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID: MB 580-237969/1**  
**Matrix: Water**  
**Analysis Batch: 237969**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			02/08/17 08:34	1

**Lab Sample ID: LCS 580-237969/2**  
**Matrix: Water**  
**Analysis Batch: 237969**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.93		mg/L		96	90 - 110

**Lab Sample ID: 580-65878-3 MS**  
**Matrix: Water**  
**Analysis Batch: 237969**

**Client Sample ID: WCTSW001B-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	ND		2.00	1.94		mg/L		97	80 - 120

**Lab Sample ID: 580-65878-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 237969**

**Client Sample ID: WCTSW001B-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	ND		2.00	1.99		mg/L		99	80 - 120	3	20

**Lab Sample ID: 580-65878-3 DU**  
**Matrix: Water**  
**Analysis Batch: 237969**

**Client Sample ID: WCTSW001B-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
ortho-Phosphate	ND		ND		mg/L		NC	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

## Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 580-238075/2  
Matrix: Water  
Analysis Batch: 238075

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	92.8		mg/L		93	85 - 115

## Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 580-238192/1  
Matrix: Water  
Analysis Batch: 238192

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			02/11/17 14:45	1

Lab Sample ID: LCS 580-238192/2  
Matrix: Water  
Analysis Batch: 238192

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	21.2		mg/L		77	70.6 - 120

Lab Sample ID: 580-65878-3 DU  
Matrix: Water  
Analysis Batch: 238192

Client Sample ID: WCTSW001B-E4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	190		191		mg/L		0.1	20

## Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-361702/3  
Matrix: Water  
Analysis Batch: 361702

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/09/17 20:48	1

Lab Sample ID: LCS 280-361702/4  
Matrix: Water  
Analysis Batch: 361702

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.494	0.494		mg/L		100	80 - 119

Lab Sample ID: LCSD 280-361702/5  
Matrix: Water  
Analysis Batch: 361702

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.494	0.505		mg/L		102	80 - 119	2	10

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-239315/3**  
**Matrix: Water**  
**Analysis Batch: 239315**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			02/25/17 19:19	1

**Lab Sample ID: LCS 580-239315/4**  
**Matrix: Water**  
**Analysis Batch: 239315**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.22		mg/L		92	85 - 115

**Lab Sample ID: 580-65878-1 MS**  
**Matrix: Water**  
**Analysis Batch: 239315**

**Client Sample ID: OF2-E4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	2.1		10.0	10.8		mg/L		87	85 - 115

**Lab Sample ID: 580-65878-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 239315**

**Client Sample ID: OF2-E4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	2.1		10.0	10.8		mg/L		88	85 - 115	0	20

**Lab Sample ID: 580-65878-1 DU**  
**Matrix: Water**  
**Analysis Batch: 239315**

**Client Sample ID: OF2-E4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	2.1		2.04		mg/L		2	20

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-239320/3**  
**Matrix: Water**  
**Analysis Batch: 239320**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	0.290	J	1.0	0.19	mg/L			02/26/17 02:05	1

**Lab Sample ID: LCS 580-239320/4**  
**Matrix: Water**  
**Analysis Batch: 239320**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.00		mg/L		90	85 - 115

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

Lab Sample ID: 580-65878-1 MS

Matrix: Water

Analysis Batch: 239320

Client Sample ID: OF2-E4

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	1.9	F1 B	10.0	10.3	F1	mg/L		84	85 - 115

Lab Sample ID: 580-65878-1 MSD

Matrix: Water

Analysis Batch: 239320

Client Sample ID: OF2-E4

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	1.9	F1 B	10.0	10.5		mg/L		86	85 - 115	2	20

Lab Sample ID: 580-65878-1 DU

Matrix: Water

Analysis Batch: 239320

Client Sample ID: OF2-E4

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	1.9	F1 B	1.95		mg/L		0.6	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

**Client Sample ID: OF2-E4**

**Date Collected: 02/06/17 17:30**

**Date Received: 02/07/17 12:17**

**Lab Sample ID: 580-65878-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	238192	02/11/17 14:45	Z1T	TAL SEA
Dissolved	Analysis	SM 5310B		1	239320	02/26/17 02:05	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	239315	02/25/17 19:19	Z1T	TAL SEA

**Client Sample ID: OF3-E4**

**Date Collected: 02/06/17 18:10**

**Date Received: 02/07/17 12:17**

**Lab Sample ID: 580-65878-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	238192	02/11/17 14:45	Z1T	TAL SEA
Dissolved	Analysis	SM 5310B		1	239320	02/26/17 02:05	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	239315	02/25/17 19:19	Z1T	TAL SEA

**Client Sample ID: WCTSW001B-E4**

**Date Collected: 02/06/17 17:10**

**Date Received: 02/07/17 12:17**

**Lab Sample ID: 580-65878-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239770	03/06/17 09:14	MKN	TAL SEA
Dissolved	Analysis	6020A		5	239851	03/06/17 14:26	FCW	TAL SEA
Total Recoverable	Prep	3005A			239769	03/06/17 07:59	MKN	TAL SEA
Total Recoverable	Analysis	6020A		5	239851	03/06/17 15:56	FCW	TAL SEA
Dissolved	Analysis	300.0		1	238035	02/08/17 10:29	RSB	TAL SEA
Dissolved	Analysis	300.0		1	238036	02/08/17 10:29	RSB	TAL SEA
Dissolved	Analysis	300.0		10	238036	02/08/17 13:22	RSB	TAL SEA
Dissolved	Analysis	365.1		1	237969	02/08/17 08:34	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	238075	02/09/17 12:32	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	238192	02/11/17 14:45	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	361702	02/09/17 20:48	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		1	239320	02/26/17 02:05	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	239315	02/25/17 19:19	Z1T	TAL SEA

**Client Sample ID: WCTSW002B-E4**

**Date Collected: 02/06/17 18:00**

**Date Received: 02/07/17 12:17**

**Lab Sample ID: 580-65878-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	238035	02/08/17 10:45	RSB	TAL SEA
Dissolved	Analysis	300.0		1	238036	02/08/17 10:45	RSB	TAL SEA
Dissolved	Analysis	300.0		10	238036	02/08/17 13:37	RSB	TAL SEA
Dissolved	Analysis	365.1		1	237969	02/08/17 08:34	EMM	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

**Client Sample ID: WCTSW002B-E4**

**Lab Sample ID: 580-65878-4**

**Date Collected: 02/06/17 18:00**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 2320B		1	238075	02/09/17 12:32	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	238192	02/11/17 14:45	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	361702	02/09/17 20:48	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		1	239320	02/26/17 02:05	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	239315	02/25/17 19:19	Z1T	TAL SEA

**Client Sample ID: WCTSW003B-E4**

**Lab Sample ID: 580-65878-5**

**Date Collected: 02/06/17 18:30**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	238035	02/08/17 11:00	RSB	TAL SEA
Dissolved	Analysis	300.0		1	238036	02/08/17 11:00	RSB	TAL SEA
Dissolved	Analysis	300.0		10	238036	02/08/17 13:52	RSB	TAL SEA
Dissolved	Analysis	365.1		1	237969	02/08/17 08:34	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	238075	02/09/17 12:32	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	238192	02/11/17 14:45	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	361702	02/09/17 20:48	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		1	239320	02/26/17 02:05	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	239315	02/25/17 19:19	Z1T	TAL SEA

**Client Sample ID: WCTSW004B-E4**

**Lab Sample ID: 580-65878-6**

**Date Collected: 02/06/17 19:15**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			238069	02/09/17 11:20	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		1	238082	02/09/17 21:05	W1T	TAL SEA
Total/NA	Analysis	SM 2540D		1	238192	02/11/17 14:45	Z1T	TAL SEA
Dissolved	Analysis	SM 5310B		1	239320	02/26/17 02:05	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	239315	02/25/17 19:19	Z1T	TAL SEA

**Client Sample ID: BWSW001-E4**

**Lab Sample ID: 580-65878-7**

**Date Collected: 02/06/17 14:15**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		100	238035	02/08/17 11:16	RSB	TAL SEA
Dissolved	Analysis	300.0		100	238036	02/08/17 11:16	RSB	TAL SEA
Dissolved	Analysis	300.0		1000	238036	02/08/17 14:08	RSB	TAL SEA
Dissolved	Analysis	365.1		1	237969	02/08/17 08:34	EMM	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

**Client Sample ID: BWSW001-E4**

**Lab Sample ID: 580-65878-7**

**Date Collected: 02/06/17 14:15**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 2320B		1	238075	02/09/17 12:32	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	238192	02/11/17 14:45	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	361702	02/09/17 20:48	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		1	239320	02/26/17 02:05	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	239315	02/25/17 19:19	Z1T	TAL SEA

**Client Sample ID: USSW001-E4**

**Lab Sample ID: 580-65878-8**

**Date Collected: 02/06/17 11:40**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	300.0		1	238035	02/08/17 09:43	RSB	TAL SEA
Dissolved	Analysis	300.0		1	238036	02/08/17 09:43	RSB	TAL SEA
Dissolved	Analysis	365.1		1	237969	02/08/17 08:35	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	238075	02/09/17 12:32	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	238192	02/11/17 14:45	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	361702	02/09/17 20:48	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		1	239320	02/26/17 02:05	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	239315	02/25/17 19:19	Z1T	TAL SEA

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-18

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
6020A	3005A	Water	Iron
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 5310B		Water	Dissolved Organic Carbon

## Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-02-17

# Sample Summary

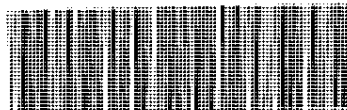
Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-65878-1	OF2-E4	Water	02/06/17 17:30	02/07/17 12:17
580-65878-2	OF3-E4	Water	02/06/17 18:10	02/07/17 12:17
580-65878-3	WCTSW001B-E4	Water	02/06/17 17:10	02/07/17 12:17
580-65878-4	WCTSW002B-E4	Water	02/06/17 18:00	02/07/17 12:17
580-65878-5	WCTSW003B-E4	Water	02/06/17 18:30	02/07/17 12:17
580-65878-6	WCTSW004B-E4	Water	02/06/17 19:15	02/07/17 12:17
580-65878-7	BWSW001-E4	Water	02/06/17 14:15	02/07/17 12:17
580-65878-8	USSW001-E4	Water	02/06/17 11:40	02/07/17 12:17



55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700



580-65878 Chain of Custody

Loc: 580  
**65878**

Field Sampler(s): SK, RF, PP

### Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
<b>Project Name:</b> Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>	<b>Brooks</b>	Brooks Ben Wozniak 206-753-6158
<b>Project # or PO #:</b> 603.002.014	Custody Seals intact?	<b>Analysis Requested</b>		
<b>Project Manager:</b> Erin Hughes	Hand delivered?			TestAmerica Sheri Cruz 253-248-4960
<b>Phone #:</b> 971-200-8528	Cooler Temp: _____ °C			
<b>Report to email:</b> echughes@gsiws.com	Therm ID No.: _____ Therm Exp. _____			

**Analysis Turnaround Time:**  
 Standard 21 day TAT on Most Analyses  
 Rush 5 day on Dissolved Metals in Porewater

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon (field filtered)	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
OF2-E4	2/6/17	1730	85	G	W	5	X	X		X									X	X		
OF3-E4		1810	77			5																
NCTSW001B-E4		1710	1530			10			X		X	X	X	X	X							
NCTSW002B-E4		1800	904			10			X		X	X	X	X	X							
NCTSW003B-E4		1830	1208			10			X		X	X	X	X	X							
NCTSW004B-E4		1915	170			7												X				
BWSW001-E4		1415	4360	↓	↓	10			X		X	X	X	X	X							
USSW001-E4		1140	155	G	W	10	↓	↓	X	↓	X	X	X	X	X							

TB A2 Cooler Cor 5.5 Unc 6.4  
 Cooler Discrg blue white Lab  
 Wet/Packs Packing none  
 Cli drop w/o CS  
 Brooks cooler

<b>Possible Hazard Identification:</b> Are samples hazardous? <input checked="" type="checkbox"/> No If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic select hazard(s): Relinquished by: <u>Stein</u> Date/Time: <u>2-7-2017 1216</u>	<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b> <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year Received by: <u>M. Brown</u> Date/Time: <u>2/7/17 1217</u>
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____	Received in Laboratory by: _____ Date/Time: _____

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

cooler 1  
 TB Cooler IR4 Cor 3.7 Unc 4.3  
 Cooler Discrg blue white Lab  
 Wet/Packs Packing bubble  
 Cli drop w/o CS

cooler 2  
 TB Cooler IR4 Cor 3.0 Unc 3.6  
 Cooler Discrg blue white Lab  
 Wet/Packs Packing bubble  
 Cli drop w/o CS

3/8/2017





# Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-65878-1

**Login Number: 65878**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Ponce-McDermott, Monica**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-65878-1

**Login Number: 65878**  
**List Number: 2**  
**Creator: White, Denise E**

**List Source: TestAmerica Denver**  
**List Creation: 02/09/17 04:53 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING


## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-65878-2  
Client Project/Site: Parcel 15 POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Erin Carroll Hughes



Authorized for release by:  
2/14/2017 8:49:06 AM

Sheri Cruz, Project Manager I  
(253)922-2310  
[sheri.cruz@testamericainc.com](mailto:sheri.cruz@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-2

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**Job ID: 580-65878-2**

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**Laboratory: TestAmerica Seattle**

## Narrative

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**Job Narrative**  
**580-65878-2**

## Comments

No additional comments.

## Receipt

The samples were received on 2/7/2017 12:17 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.0° C and 3.7° C.

## Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-2

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-2

**Client Sample ID: WCTSW001B-E4**

**Lab Sample ID: 580-65878-3**

**Date Collected: 02/06/17 17:10**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	23		1.1	0.023	mg/L		02/08/17 09:06	02/08/17 16:25	1
Magnesium	31		1.1	0.13	mg/L		02/08/17 09:06	02/08/17 16:25	1
Potassium	12		3.3	0.15	mg/L		02/08/17 09:06	02/08/17 16:25	1
Sodium	250		2.0	0.55	mg/L		02/08/17 09:06	02/08/17 16:25	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-2

**Client Sample ID: WCTSW002B-E4**

**Lab Sample ID: 580-65878-4**

**Date Collected: 02/06/17 18:00**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	20		1.1	0.023	mg/L		02/09/17 08:57	02/10/17 11:14	1
Magnesium	23		1.1	0.13	mg/L		02/09/17 08:57	02/10/17 11:14	1
Potassium	7.9		3.3	0.15	mg/L		02/09/17 08:57	02/10/17 11:14	1
Sodium	150		2.0	0.55	mg/L		02/09/17 08:57	02/10/17 11:14	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-2

**Client Sample ID: WCTSW003B-E4**

**Lab Sample ID: 580-65878-5**

**Date Collected: 02/06/17 18:30**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	22		1.1	0.023	mg/L		02/09/17 08:57	02/10/17 11:18	1
Magnesium	30		1.1	0.13	mg/L		02/09/17 08:57	02/10/17 11:18	1
Potassium	10		3.3	0.15	mg/L		02/09/17 08:57	02/10/17 11:18	1
Sodium	200		2.0	0.55	mg/L		02/09/17 08:57	02/10/17 11:18	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-2

**Client Sample ID: BWSW001-E4**

**Lab Sample ID: 580-65878-7**

**Date Collected: 02/06/17 14:15**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	310		1.1	0.023	mg/L		02/09/17 08:57	02/10/17 11:21	1
Magnesium	1100		55	6.7	mg/L		02/09/17 08:57	02/13/17 11:47	50
Potassium	320		3.3	0.15	mg/L		02/09/17 08:57	02/10/17 11:21	1
Sodium	9100		100	28	mg/L		02/09/17 08:57	02/13/17 11:47	50

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-2

**Client Sample ID: USSW001-E4**

**Lab Sample ID: 580-65878-8**

**Date Collected: 02/06/17 11:40**

**Matrix: Water**

**Date Received: 02/07/17 12:17**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	17		1.1	0.023	mg/L		02/09/17 08:57	02/10/17 11:25	1
Magnesium	7.5		1.1	0.13	mg/L		02/09/17 08:57	02/13/17 11:50	1
Potassium	3.6		3.3	0.15	mg/L		02/09/17 08:57	02/10/17 11:25	1
Sodium	10		2.0	0.55	mg/L		02/09/17 08:57	02/13/17 11:50	1

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-2

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-237974/14-A**  
**Matrix: Water**  
**Analysis Batch: 238039**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 237974**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		02/08/17 09:06	02/08/17 15:38	1
Magnesium	ND		1.1	0.13	mg/L		02/08/17 09:06	02/08/17 15:38	1
Potassium	ND		3.3	0.15	mg/L		02/08/17 09:06	02/08/17 15:38	1
Sodium	ND		2.0	0.55	mg/L		02/08/17 09:06	02/08/17 15:38	1

**Lab Sample ID: LCS 580-237974/15-A**  
**Matrix: Water**  
**Analysis Batch: 238039**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 237974**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	19.9		mg/L		99	80 - 120
Magnesium	20.0	18.2		mg/L		91	80 - 120
Potassium	20.0	20.2		mg/L		101	80 - 120
Sodium	20.0	20.5		mg/L		102	80 - 120

**Lab Sample ID: LCSD 580-237974/16-A**  
**Matrix: Water**  
**Analysis Batch: 238039**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 237974**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	20.0	20.0		mg/L		100	80 - 120	1	20
Magnesium	20.0	18.4		mg/L		92	80 - 120	2	20
Potassium	20.0	20.5		mg/L		103	80 - 120	2	20
Sodium	20.0	21.0		mg/L		105	80 - 120	3	20

**Lab Sample ID: MB 580-238041/14-A**  
**Matrix: Water**  
**Analysis Batch: 238224**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 238041**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		02/09/17 08:57	02/10/17 10:41	1
Magnesium	ND		1.1	0.13	mg/L		02/09/17 08:57	02/10/17 10:41	1
Potassium	ND		3.3	0.15	mg/L		02/09/17 08:57	02/10/17 10:41	1
Sodium	ND		2.0	0.55	mg/L		02/09/17 08:57	02/10/17 10:41	1

**Lab Sample ID: LCS 580-238041/15-A**  
**Matrix: Water**  
**Analysis Batch: 238224**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 238041**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	20.6		mg/L		103	80 - 120
Magnesium	20.0	20.4		mg/L		102	80 - 120
Potassium	20.0	20.0		mg/L		100	80 - 120
Sodium	20.0	20.5		mg/L		103	80 - 120

# QC Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-2

## Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 580-238041/16-A  
 Matrix: Water  
 Analysis Batch: 238224

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total Recoverable  
 Prep Batch: 238041

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Calcium	20.0	21.1		mg/L		106	80 - 120	3	20
Magnesium	20.0	20.9		mg/L		105	80 - 120	2	20
Potassium	20.0	20.5		mg/L		102	80 - 120	2	20
Sodium	20.0	21.0		mg/L		105	80 - 120	2	20

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# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-2

**Client Sample ID: WCTSW001B-E4**

**Date Collected: 02/06/17 17:10**

**Date Received: 02/07/17 12:17**

**Lab Sample ID: 580-65878-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			237974	02/08/17 09:06	ADB	TAL SEA
Dissolved	Analysis	6010C		1	238039	02/08/17 16:25	HJM	TAL SEA

**Client Sample ID: WCTSW002B-E4**

**Date Collected: 02/06/17 18:00**

**Date Received: 02/07/17 12:17**

**Lab Sample ID: 580-65878-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			238041	02/09/17 08:57	ADB	TAL SEA
Dissolved	Analysis	6010C		1	238224	02/10/17 11:14	HJM	TAL SEA

**Client Sample ID: WCTSW003B-E4**

**Date Collected: 02/06/17 18:30**

**Date Received: 02/07/17 12:17**

**Lab Sample ID: 580-65878-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			238041	02/09/17 08:57	ADB	TAL SEA
Dissolved	Analysis	6010C		1	238224	02/10/17 11:18	HJM	TAL SEA

**Client Sample ID: BWSW001-E4**

**Date Collected: 02/06/17 14:15**

**Date Received: 02/07/17 12:17**

**Lab Sample ID: 580-65878-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			238041	02/09/17 08:57	ADB	TAL SEA
Dissolved	Analysis	6010C		1	238224	02/10/17 11:21	HJM	TAL SEA
Dissolved	Prep	3005A			238041	02/09/17 08:57	ADB	TAL SEA
Dissolved	Analysis	6010C		50	238301	02/13/17 11:47	HJM	TAL SEA

**Client Sample ID: USSW001-E4**

**Date Collected: 02/06/17 11:40**

**Date Received: 02/07/17 12:17**

**Lab Sample ID: 580-65878-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			238041	02/09/17 08:57	ADB	TAL SEA
Dissolved	Analysis	6010C		1	238224	02/10/17 11:25	HJM	TAL SEA
Dissolved	Prep	3005A			238041	02/09/17 08:57	ADB	TAL SEA
Dissolved	Analysis	6010C		1	238301	02/13/17 11:50	HJM	TAL SEA

**Laboratory References:**

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-2

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-17

Analysis Method	Prep Method	Matrix	Analyte
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# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 POT

TestAmerica Job ID: 580-65878-2

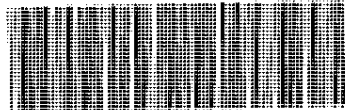
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-65878-3	WCTSW001B-E4	Water	02/06/17 17:10	02/07/17 12:17
580-65878-4	WCTSW002B-E4	Water	02/06/17 18:00	02/07/17 12:17
580-65878-5	WCTSW003B-E4	Water	02/06/17 18:30	02/07/17 12:17
580-65878-7	BWSW001-E4	Water	02/06/17 14:15	02/07/17 12:17
580-65878-8	USSW001-E4	Water	02/06/17 11:40	02/07/17 12:17

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55 SW Yamhill St, Suite 300  
 Portland, Oregon 97204  
 503.239.8700



580-65878 Chain of Custody

Loc: 580  
**65878**

Field Sampler(s): SK, RF, PP

### Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
<b>Project Name:</b> Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>	<b>Brooks</b>	Brooks Ben Wozniak 206-753-6158
<b>Project # or PO #:</b> 603.002.014	Custody Seals intact?	<b>Analysis Requested</b>		
<b>Project Manager:</b> Erin Hughes	Hand delivered?	SM5310B: Total Organic Carbon SM5310B: Dissolved Organic Carbon (field filtered) SM4500 S 2D: Sulfide (dissolved; field filtered) SM2540D: Total Suspended Solids (TSS) 6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)* 300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)** 300.0: Nitrate and Nitrite (dissolved; field filtered) SM2320B: Alkalinity (field filtered)*** 365.1: Major Anions (Orthophosphate; dissolved; field filtered) 6020A: Arsenic (total) 6020A: Arsenic, Iron, and Manganese (dissolved; field filtered) 8260D SIM: Pentachlorophenol 1638M: Arsenic (total) 1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)*** Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)		TestAmerica Sheri Cruz 253-248-4960
<b>Phone #:</b> 971-200-8528	Cooler Temp: _____ °C			
<b>Report to email:</b> echughes@gsws.com	Therm ID No.: _____ Therm Exp. _____			

**Analysis Turnaround Time:**  
 Standard 21 day TAT on Most Analyses  
 Rush 5 day on Dissolved Metals in Porewater

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon (field filtered)	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
OF2-E4	2/6/17	1730	85	G	W	5	X	X		X									X	X		
OF3-E4		1810	77			5																
NCTSW001B-E4		1710	1530			10		X			X	X	X	X	X							
NCTSW002B-E4		1800	904			10		X			X	X	X	X	X							
NCTSW003B-E4		1830	1208			10		X			X	X	X	X	X							
NCTSW004B-E4		1915	170			7												X				
BWSW001-E4		1415	4360	↓	↓	10		X			X	X	X	X	X							
USSW001-E4		1140	155	G	W	10	↓	↓	X	↓	X	X	X	X	X							

TB A2 Cooler Cor 5.5 Unc 6.4  
 Cooler Discrg blue white Lab  
 Wet/Packs Packing none  
 Cli drew w/o CS  
 Brooks cooler

<b>Possible Hazard Identification:</b> Are samples hazardous? <input checked="" type="checkbox"/> No If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic select hazard(s): Relinquished by: <u>Stein</u> Date/Time: <u>2-7-2017 1216</u>	<b>Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)</b> <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year Received by: <u>M. Brown</u> Date/Time: <u>2/7/17 1217</u>
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other	Received in Laboratory by: _____ Date/Time: _____

**Special Instructions/QC Requirements**  
 \*Major Cations include calcium, magnesium, potassium, and sodium.  
 \*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
 \*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
 Please contact Cindy Ryals at 971-200-8531 with any questions.

cooler 1  
 TB Cooler IR4 Cor 3.7 Unc 4.3  
 Cooler Discrg blue white Lab  
 Wet/Packs Packing bubble  
 Cli drew w/o CS

cooler 2  
 TB Cooler IR4 Cor 3.0 Unc 3.6  
 Cooler Discrg blue white Lab  
 Wet/Packs Packing bubble  
 Cli drew w/o CS

2/14/2017

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-65878-2

**Login Number: 65878**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Ponce-McDermott, Monica**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT


TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-66220-1  
Client Project/Site: Parcel 15 - POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Erin Carroll Hughes



Authorized for release by:  
3/9/2017 11:55:12 AM

Sheri Cruz, Project Manager I  
(253)922-2310  
[sheri.cruz@testamericainc.com](mailto:sheri.cruz@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

**Job ID: 580-66220-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-66220-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 2/21/2017 2:29 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.2° C.

#### Receipt Exceptions

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): MW002R-E4 (580-66220-2). The container labels list sample ID as MW002R-E4, while the COC lists MW002-E4. Logged sample in using ID MW002R-E4.

#### GC/MS Semi VOA

Method(s) 8270D SIM: The method blank for preparation batch 580-239031 and analytical batch 580-239299 contained Pentachlorophenol above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank. (MW002R-E4) 580-66220-2

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) SM 4500 S2 D: Sulfide analytical batch 280-363618: The matrix spike / matrix spike duplicate (MS/MSD) recoveries were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (280-94148-J-1), (280-94148-J-1 MS) and (280-94148-J-1 MSD)

Method SM 5310B DOC: MB 580-239320/3 and MB580-239883/3 has a hit in the method blank above the MDL but less than half the RL. Data has been reported.

Method SM 5310B TOC: MB 580-239878/3 has a hit in the method blank above the MDL but less than half the RL. Data has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

Method(s) 3510C: The following sample formed emulsions during the extraction procedure: MW001-E4 (580-66220-3).

Method(s) 3510C: The following sample formed emulsions during the extraction procedure: MW004-E4 (580-66220-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Subcontract Work

Methods Major Ions (Br,Cl,F,SO4), field-filtered, Major Ions (NO3, NO2), field filtered: These methods were subcontracted to Analytical Resources, Inc. The subcontract laboratory certifications are different from that of the facility issuing the final report.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.

### General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

**Client Sample ID: MW004-E4**

**Date Collected: 02/20/17 15:40**

**Date Received: 02/21/17 14:29**

**Lab Sample ID: 580-66220-1**

**Matrix: Water**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.084	0.084	ug/L		02/27/17 17:00	02/28/17 17:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	60		44 - 125				02/27/17 17:00	02/28/17 17:16	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	2.2		1.0	0.19	mg/L			02/25/17 19:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	100		3.1	3.1	mg/L			02/24/17 12:18	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.2	B	1.0	0.19	mg/L			02/26/17 02:05	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

**Client Sample ID: MW002R-E4**

**Lab Sample ID: 580-66220-2**

**Date Collected: 02/20/17 17:40**

**Matrix: Water**

**Date Received: 02/21/17 14:29**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	7.8	B	0.084	0.084	ug/L		02/22/17 14:22	02/25/17 23:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	44		44 - 125				02/22/17 14:22	02/25/17 23:02	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	3.2		1.0	0.19	mg/L			02/25/17 19:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	2.0		2.0	2.0	mg/L			02/24/17 12:18	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.4	B	1.0	0.19	mg/L			02/26/17 02:05	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

**Client Sample ID: MW001-E4**

**Lab Sample ID: 580-66220-3**

**Date Collected: 02/20/17 17:15**

**Matrix: Water**

**Date Received: 02/21/17 14:29**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.099		0.087	0.087	ug/L		02/27/17 17:00	02/28/17 17:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	69		44 - 125				02/27/17 17:00	02/28/17 17:39	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	46		4.0	0.76	mg/L			03/04/17 00:46	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	9.0		2.0	2.0	mg/L			02/24/17 12:18	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	43	B	4.0	0.76	mg/L			03/07/17 00:21	4

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

**Client Sample ID: HC002-E4**

**Lab Sample ID: 580-66220-4**

**Date Collected: 02/21/17 10:55**

**Matrix: Water**

**Date Received: 02/21/17 14:29**

### Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	47		1.1	0.023	mg/L		03/07/17 09:10	03/08/17 14:25	1
Magnesium	15		1.1	0.13	mg/L		03/07/17 09:10	03/08/17 14:25	1
Potassium	19		3.3	0.15	mg/L		03/07/17 09:10	03/08/17 14:25	1
Sodium	40		2.0	0.55	mg/L		03/07/17 09:10	03/08/17 14:25	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	69	B	10	1.9	mg/L			03/06/17 17:21	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	72		2.5	2.5	mg/L			02/24/17 12:18	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:04	1
Dissolved Organic Carbon	70	B	10	1.9	mg/L			03/07/17 00:21	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.26	F1	0.10	0.10	mg/L			02/22/17 11:19	1
Alkalinity	260		5.0	5.0	mg/L			03/06/17 08:38	1
Bicarbonate Alkalinity as CaCO3	260		5.0	5.0	mg/L			03/06/17 08:38	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

**Client Sample ID: B001R-E4**

**Lab Sample ID: 580-66220-5**

**Date Collected: 02/21/17 10:50**

**Matrix: Water**

**Date Received: 02/21/17 14:29**

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100		1.1	0.023	mg/L		03/07/17 09:10	03/08/17 14:28	1
Magnesium	53		1.1	0.13	mg/L		03/07/17 09:10	03/08/17 14:28	1
Potassium	49		3.3	0.15	mg/L		03/07/17 09:10	03/08/17 14:28	1
Sodium	110		2.0	0.55	mg/L		03/07/17 09:10	03/08/17 14:28	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	96	B	10	1.9	mg/L			03/06/17 17:21	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	170		10	10	mg/L			02/25/17 16:19	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:04	1
Dissolved Organic Carbon	90	B	10	1.9	mg/L			03/07/17 00:21	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	1.4		0.10	0.10	mg/L			02/22/17 11:19	1
Alkalinity	700		5.0	5.0	mg/L			02/25/17 14:09	1
Bicarbonate Alkalinity as CaCO3	700		5.0	5.0	mg/L			02/25/17 14:09	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/25/17 14:09	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/25/17 14:09	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

**Client Sample ID: B003R-E4**

**Lab Sample ID: 580-66220-6**

**Date Collected: 02/21/17 13:15**

**Matrix: Water**

**Date Received: 02/21/17 14:29**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>51</b>	<b>B</b>	10	1.9	mg/L	--		03/06/17 17:21	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>4.2</b>		2.0	2.0	mg/L	--		02/25/17 14:55	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L	--		02/27/17 20:04	1
<b>Dissolved Organic Carbon</b>	<b>50</b>	<b>B</b>	10	1.9	mg/L	--		03/07/17 00:21	10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-239031/1-A**  
**Matrix: Water**  
**Analysis Batch: 239299**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 239031**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.128		0.080	0.080	ug/L		02/22/17 14:22	02/25/17 17:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	59		44 - 125				02/22/17 14:22	02/25/17 17:10	1

**Lab Sample ID: LCS 580-239031/2-A**  
**Matrix: Water**  
**Analysis Batch: 239299**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 239031**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Pentachlorophenol	4.00	3.68		ug/L		92	30 - 149		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
2,4,6-Tribromophenol	66		44 - 125						

**Lab Sample ID: LCSD 580-239031/3-A**  
**Matrix: Water**  
**Analysis Batch: 239299**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 239031**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	4.00	3.74		ug/L		94	30 - 149	2	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	73		44 - 125						

**Lab Sample ID: MB 580-239397/1-A**  
**Matrix: Water**  
**Analysis Batch: 239452**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 239397**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.080	0.080	ug/L		02/27/17 17:00	02/28/17 16:54	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	67		44 - 125				02/27/17 17:00	02/28/17 16:54	1

**Lab Sample ID: LCS 580-239397/2-A**  
**Matrix: Water**  
**Analysis Batch: 239452**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 239397**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Pentachlorophenol	4.00	3.62		ug/L		91	30 - 149		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
2,4,6-Tribromophenol	69		44 - 125						

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCSD 580-239397/3-A**  
**Matrix: Water**  
**Analysis Batch: 239452**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 239397**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	4.00	3.73		ug/L		93	30 - 149	3	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4,6-Tribromophenol	71		44 - 125

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-239859/19-A**  
**Matrix: Water**  
**Analysis Batch: 240049**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239859**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		03/07/17 09:10	03/08/17 13:53	1
Magnesium	ND		1.1	0.13	mg/L		03/07/17 09:10	03/08/17 13:53	1
Potassium	ND		3.3	0.15	mg/L		03/07/17 09:10	03/08/17 13:53	1
Sodium	ND		2.0	0.55	mg/L		03/07/17 09:10	03/08/17 13:53	1

**Lab Sample ID: LCS 580-239859/20-A**  
**Matrix: Water**  
**Analysis Batch: 240049**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239859**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Calcium	20.0	20.7		mg/L		104	80 - 120
Magnesium	20.0	21.2		mg/L		106	80 - 120
Potassium	20.0	20.3		mg/L		102	80 - 120
Sodium	20.0	19.9		mg/L		99	80 - 120

**Lab Sample ID: LCSD 580-239859/21-A**  
**Matrix: Water**  
**Analysis Batch: 240049**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239859**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Calcium	20.0	20.4		mg/L		102	80 - 120	2	20
Magnesium	20.0	20.2		mg/L		101	80 - 120	5	20
Potassium	20.0	19.9		mg/L		100	80 - 120	2	20
Sodium	20.0	20.0		mg/L		100	80 - 120	0	20

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID: MB 580-238996/1**  
**Matrix: Water**  
**Analysis Batch: 238996**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			02/22/17 11:19	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

## Method: 365.1 - Phosphorus, Ortho (Continued)

**Lab Sample ID: LCS 580-238996/2**  
**Matrix: Water**  
**Analysis Batch: 238996**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.96		mg/L		98	90 - 110

**Lab Sample ID: 580-66220-4 MS**  
**Matrix: Water**  
**Analysis Batch: 238996**

**Client Sample ID: HC002-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	0.26	F1	2.00	1.76	F1	mg/L		75	80 - 120

**Lab Sample ID: 580-66220-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 238996**

**Client Sample ID: HC002-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	0.26	F1	2.00	1.79	F1	mg/L		77	80 - 120	2	20

**Lab Sample ID: 580-66220-4 DU**  
**Matrix: Water**  
**Analysis Batch: 238996**

**Client Sample ID: HC002-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	0.26	F1		0.258		mg/L				2	20

## Method: SM 2320B - Alkalinity

**Lab Sample ID: LCS 580-239297/2**  
**Matrix: Water**  
**Analysis Batch: 239297**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	89.7		mg/L		90	85 - 115

**Lab Sample ID: LCS 580-239854/2**  
**Matrix: Water**  
**Analysis Batch: 239854**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	103		mg/L		103	85 - 115

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 580-239238/1**  
**Matrix: Water**  
**Analysis Batch: 239238**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			02/24/17 12:18	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

## Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

**Lab Sample ID: LCS 580-239238/2**  
**Matrix: Water**  
**Analysis Batch: 239238**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	22.4		mg/L		81	70.6 - 120

**Lab Sample ID: MB 580-239301/1**  
**Matrix: Water**  
**Analysis Batch: 239301**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0 mg/L			02/25/17 14:55	1

**Lab Sample ID: LCS 580-239301/2**  
**Matrix: Water**  
**Analysis Batch: 239301**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	23.2		mg/L		84	70.6 - 120

**Lab Sample ID: 580-66220-6 DU**  
**Matrix: Water**  
**Analysis Batch: 239301**

**Client Sample ID: B003R-E4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	4.2		4.00		mg/L		5	20

**Lab Sample ID: MB 580-239304/1**  
**Matrix: Water**  
**Analysis Batch: 239304**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0 mg/L			02/25/17 16:19	1

**Lab Sample ID: LCS 580-239304/2**  
**Matrix: Water**  
**Analysis Batch: 239304**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	26.0		mg/L		94	70.6 - 120

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID: MB 280-363618/3**  
**Matrix: Water**  
**Analysis Batch: 363618**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070 mg/L			02/27/17 20:04	1

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

## Method: SM 4500 S2 D - Sulfide, Total (Continued)

**Lab Sample ID: LCS 280-363618/4**  
**Matrix: Water**  
**Analysis Batch: 363618**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.460	0.413		mg/L		90	80 - 119

**Lab Sample ID: LCSD 280-363618/5**  
**Matrix: Water**  
**Analysis Batch: 363618**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.460	0.416		mg/L		90	80 - 119	1	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-239315/3**  
**Matrix: Water**  
**Analysis Batch: 239315**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			02/25/17 19:19	1

**Lab Sample ID: LCS 580-239315/4**  
**Matrix: Water**  
**Analysis Batch: 239315**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.22		mg/L		92	85 - 115

**Lab Sample ID: MB 580-239793/3**  
**Matrix: Water**  
**Analysis Batch: 239793**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			03/04/17 00:46	1

**Lab Sample ID: LCS 580-239793/4**  
**Matrix: Water**  
**Analysis Batch: 239793**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.58		mg/L		96	85 - 115

**Lab Sample ID: MB 580-239878/3**  
**Matrix: Water**  
**Analysis Batch: 239878**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.201	J	1.0	0.19	mg/L			03/06/17 17:21	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: LCS 580-239878/4**  
**Matrix: Water**  
**Analysis Batch: 239878**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	10.0		mg/L		100	85 - 115

**Lab Sample ID: 580-66220-4 MS**  
**Matrix: Water**  
**Analysis Batch: 239878**

**Client Sample ID: HC002-E4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	69	B	100	170		mg/L		101	85 - 115

**Lab Sample ID: 580-66220-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 239878**

**Client Sample ID: HC002-E4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	69	B	100	169		mg/L		100	85 - 115	1	20

**Lab Sample ID: 580-66220-4 DU**  
**Matrix: Water**  
**Analysis Batch: 239878**

**Client Sample ID: HC002-E4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	69	B	71.3		mg/L		3	20

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-239320/3**  
**Matrix: Water**  
**Analysis Batch: 239320**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	0.290	J	1.0	0.19	mg/L			02/26/17 02:05	1

**Lab Sample ID: LCS 580-239320/4**  
**Matrix: Water**  
**Analysis Batch: 239320**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.00		mg/L		90	85 - 115

**Lab Sample ID: MB 580-239883/3**  
**Matrix: Water**  
**Analysis Batch: 239883**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	0.256	J	1.0	0.19	mg/L			03/07/17 00:21	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

**Lab Sample ID: LCS 580-239883/4**  
**Matrix: Water**  
**Analysis Batch: 239883**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.44		mg/L		94	85 - 115

**Lab Sample ID: 580-66220-3 MS**  
**Matrix: Water**  
**Analysis Batch: 239883**

**Client Sample ID: MW001-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	43	B	40.0	84.6		mg/L		103	85 - 115

**Lab Sample ID: 580-66220-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 239883**

**Client Sample ID: MW001-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	43	B	40.0	84.5		mg/L		103	85 - 115	0	20

**Lab Sample ID: 580-66220-3 DU**  
**Matrix: Water**  
**Analysis Batch: 239883**

**Client Sample ID: MW001-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	43	B	43.9		mg/L		2	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

**Client Sample ID: MW004-E4**  
**Date Collected: 02/20/17 15:40**  
**Date Received: 02/21/17 14:29**

**Lab Sample ID: 580-66220-1**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			239397	02/27/17 17:00	Y1W	TAL SEA
Total/NA	Analysis	8270D SIM		1	239452	02/28/17 17:16	W1T	TAL SEA
Total/NA	Analysis	SM 2540D		1	239238	02/24/17 12:18	Z1T	TAL SEA
Dissolved	Analysis	SM 5310B		1	239320	02/26/17 02:05	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	239315	02/25/17 19:19	Z1T	TAL SEA

**Client Sample ID: MW002R-E4**  
**Date Collected: 02/20/17 17:40**  
**Date Received: 02/21/17 14:29**

**Lab Sample ID: 580-66220-2**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			239031	02/22/17 14:22	Y1W	TAL SEA
Total/NA	Analysis	8270D SIM		1	239299	02/25/17 23:02	D1R	TAL SEA
Total/NA	Analysis	SM 2540D		1	239238	02/24/17 12:18	Z1T	TAL SEA
Dissolved	Analysis	SM 5310B		1	239320	02/26/17 02:05	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	239315	02/25/17 19:19	Z1T	TAL SEA

**Client Sample ID: MW001-E4**  
**Date Collected: 02/20/17 17:15**  
**Date Received: 02/21/17 14:29**

**Lab Sample ID: 580-66220-3**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			239397	02/27/17 17:00	Y1W	TAL SEA
Total/NA	Analysis	8270D SIM		1	239452	02/28/17 17:39	W1T	TAL SEA
Total/NA	Analysis	SM 2540D		1	239238	02/24/17 12:18	Z1T	TAL SEA
Dissolved	Analysis	SM 5310B		4	239883	03/07/17 00:21	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	239793	03/04/17 00:46	Z1T	TAL SEA

**Client Sample ID: HC002-E4**  
**Date Collected: 02/21/17 10:55**  
**Date Received: 02/21/17 14:29**

**Lab Sample ID: 580-66220-4**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239859	03/07/17 09:10	ADB	TAL SEA
Dissolved	Analysis	6010C		1	240049	03/08/17 14:25	HJM	TAL SEA
Dissolved	Analysis	365.1		1	238996	02/22/17 11:19	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/06/17 08:38	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239238	02/24/17 12:18	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363618	02/27/17 20:04	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		10	239883	03/07/17 00:21	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	239878	03/06/17 17:21	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

**Client Sample ID: B001R-E4**

**Date Collected: 02/21/17 10:50**

**Date Received: 02/21/17 14:29**

**Lab Sample ID: 580-66220-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239859	03/07/17 09:10	ADB	TAL SEA
Dissolved	Analysis	6010C		1	240049	03/08/17 14:28	HJM	TAL SEA
Dissolved	Analysis	365.1		1	238996	02/22/17 11:19	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239297	02/25/17 14:09	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239304	02/25/17 16:19	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363618	02/27/17 20:04	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		10	239883	03/07/17 00:21	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	239878	03/06/17 17:21	Z1T	TAL SEA

**Client Sample ID: B003R-E4**

**Date Collected: 02/21/17 13:15**

**Date Received: 02/21/17 14:29**

**Lab Sample ID: 580-66220-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	239301	02/25/17 14:55	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363618	02/27/17 20:04	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		10	239883	03/07/17 00:21	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		10	239878	03/06/17 17:21	Z1T	TAL SEA

**Laboratory References:**

SC0056 = Analytical Resources, Inc, 4611 South 134th Place, Suite 100, Tukwila, WA 98168, TEL (206)695-6200

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-18

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 5310B		Water	Dissolved Organic Carbon

## Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-02-17

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66220-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-66220-1	MW004-E4	Water	02/20/17 15:40	02/21/17 14:29
580-66220-2	MW002R-E4	Water	02/20/17 17:40	02/21/17 14:29
580-66220-3	MW001-E4	Water	02/20/17 17:15	02/21/17 14:29
580-66220-4	HC002-E4	Water	02/21/17 10:55	02/21/17 14:29
580-66220-5	B001R-E4	Water	02/21/17 10:50	02/21/17 14:29
580-66220-6	B003R-E4	Water	02/21/17 13:15	02/21/17 14:29

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07 March 2017

Sheri Cruz  
Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

RE: Parcel 15 - POT

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

<u>Associated Work Order(s)</u>	<u>Associated SDG ID(s)</u>
17C0012	N/A

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I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Mark Harris, Project Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*









# Cooler Receipt Form

ARI Client: Test America

Project Name: Parcel 15-POT

COC No(s): \_\_\_\_\_ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: 17C0012

Tracking No: \_\_\_\_\_ NA

**Preliminary Examination Phase:**

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? ..... YES NO

Were custody papers properly filled out (ink, signed, etc.) ..... YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 4.9 YES NO

Time: 12:43 \_\_\_\_\_

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D005276

Cooler Accepted by: B.H. Date: 3/1/17 Time: 12:43

*Complete custody forms and attach all shipping documents*

**Log-In Phase:**

Was a temperature blank included in the cooler? ..... YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: \_\_\_\_\_

Was sufficient ice used (if appropriate)? ..... NA YES NO

Were all bottles sealed in individual plastic bags? ..... YES NO

Did all bottles arrive in good condition (unbroken)? ..... YES NO

Were all bottle labels complete and legible? ..... YES NO

Did the number of containers listed on COC match with the number of containers received? ..... YES NO

Did all bottle labels and tags agree with custody papers? ..... YES NO

Were all bottles used correct for the requested analyses? ..... YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO

Were all VOC vials free of air bubbles? ..... NA YES NO

Was sufficient amount of sample sent in each bottle? ..... YES NO

Date VOC Trip Blank was made at ARI ..... NA

Was Sample Split by ARI : NA YES Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

Samples Logged by: B.H. Date: 3/1/17 Time: 13:27

**\*\* Notify Project Manager of discrepancies or concerns \*\***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

**Additional Notes, Discrepancies, & Resolutions:**  
Time on sample HCO02-E4 says 1130, COC says 10:55.

By: B.H. Date: 3/1/17

			Small → "sm" (< 2 mm)
			Peabubbles → "pb" (2 to < 4 mm)
			Large → "lg" (4 to < 6 mm)
			Headspace → "hs" (> 6 mm)





Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 - POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

**Reported:**  
07-Mar-2017 14:16

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HC002-E4	17C0012-01	Water	21-Feb-2017 10:55	01-Mar-2017 12:43
B001R-E4	17C0012-02	Water	21-Feb-2017 10:50	01-Mar-2017 12:43





Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 - POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

Reported:  
07-Mar-2017 14:16

## Case Narrative

**Client:** Test America-Tacoma  
**Project:** Parcel 15 - POT  
**Workorder:** 17C0012

### Sample receipt

2 samples were received 01-Mar-2017 12:43 under ARI work order 17C0012. For details regarding sample receipt, please refer to the Cooler Receipt Form.

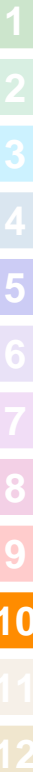
### Wet Chemistry

It was noted upon sample receipt that the holding time for nitrate and nitrite has expired. These samples were prepared and analyzed as quickly as possible for all parameters. The samples were prepared and analyzed within the recommended holding times for all remaining anions.

All initial and continuing calibrations were within method requirements.

No target compounds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within acceptable QC limits for the LCS.





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	Reported: 07-Mar-2017 14:16
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**HC002-E4**  
**17C0012-01 (Water)**

**Wet Chemistry**

Method: EPA 300.0 Sampled: 02/21/2017 10:55  
Instrument: DX2100 Analyzed: 03/01/2017 23:58

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFC0021 Sample Size: 5 mL  
Prepared: 03/01/2017 13:44 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	<b>3.23</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	<b>0.643</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	ND	mg/L	H, U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	H, U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	<b>4.08</b>	mg/L	





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	Reported: 07-Mar-2017 14:16
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**B001R-E4**  
**17C0012-02 (Water)**

**Wet Chemistry**

Method: EPA 300.0  
Instrument: DX2100  
Sampled: 02/21/2017 10:50  
Analyzed: 03/02/2017 00:59

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFC0021 Sample Size: 5 mL  
Prepared: 03/01/2017 13:44 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	1	0.100	<b>0.461</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	<b>0.866</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	ND	mg/L	U, H

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	U, H

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	<b>2.74</b>	mg/L	





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 07-Mar-2017 14:16
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**B001R-E4**  
**17C0012-02RE1 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 10:50
Instrument: DX2100	Analyzed: 03/02/2017 19:11
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	20	2.00	<b>51.1</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	Reported: 07-Mar-2017 14:16
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**Wet Chemistry - Quality Control**

**Batch BFC0021 - No Prep Wet Chem**

Instrument: DX2100

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BFC0021-BLK1)</b>		Prepared: 01-Mar-2017 Analyzed: 01-Mar-2017 17:17								
Bromide	ND	0.100	mg/L							U
Chloride	ND	0.100	mg/L							U
Fluoride	ND	0.100	mg/L							U
Nitrate-N	ND	0.100	mg/L							U
Nitrite-N	ND	0.100	mg/L							U
Sulfate	ND	0.100	mg/L							U
<b>LCS (BFC0021-BS1)</b>		Prepared: 01-Mar-2017 Analyzed: 01-Mar-2017 17:36								
Bromide	2.94	0.100	mg/L	3.00		98.1 %	75-125			
Chloride	2.96	0.100	mg/L	3.00		98.7 %	75-125			
Fluoride	3.06	0.100	mg/L	3.00		102 %	75-125			
Nitrate-N	2.96	0.100	mg/L	3.00		98.5 %	75-125			
Nitrite-N	3.06	0.100	mg/L	3.00		102 %	75-125			
Sulfate	3.16	0.100	mg/L	3.00		105 %	75-125			







Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 - POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

**Reported:**  
07-Mar-2017 14:16

**Certified Analyses included in this Report**

Analyte	Certifications
<b>EPA 300.0 in Water</b>	
Bromide	DoD-ELAP,WADOE,NELAP
Chloride	DoD-ELAP,WADOE,WA-DW,NELAP
Fluoride	DoD-ELAP,WADOE,WA-DW
Nitrate-N	DoD-ELAP,WADOE,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WADOE,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,WA-DW,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017





Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424


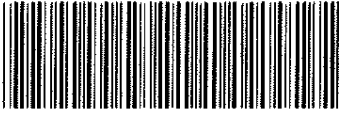
Project: Parcel 15 - POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

Reported:  
07-Mar-2017 14:16

### Notes and Definitions

- \* Flagged value is not within established control limits.
- D The reported value is from a dilution
- H Hold time violation - Hold time was exceeded.
- U This analyte is not detected above the applicable reporting or detection limit.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.



 55 SW Yamhill St, Suite 300 Portland, Oregon 97204 503.239.8700		<h2 style="margin: 0;">Chain of Custody Record</h2>										Field Sampler(s): GSI																																																																																																																																																												
<b>Client Contact</b> Project Name: Parcel 15 - POT Project # or PO #: 603.002.014 Project Manager: Erin Hughes Phone #: 971-200-8528 Report to email: echughes@gsiws.com		<b>For Lab Use Only:</b> SDG: _____ Custody Seals intact? Hand delivered? Cooler Temp: _____ °C Therm ID No.: _____ Therm Exp. _____		<b>Laboratory</b> TestAmerica      Brooks Analysis Requested										Lab PM Brooks Ben Wozniak 206-753-6158 TestAmerica Sheri Cruz 253-248-4960																																																																																																																																																										
<b>Analysis Turnaround Time:</b> Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater				<table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <thead> <tr> <th style="width: 15%;">Sample Identification</th> <th style="width: 10%;">Sample Date</th> <th style="width: 10%;">Sample Time</th> <th style="width: 10%;">Field Conductivity (uS/cm)</th> <th style="width: 10%;">Sample Type (C=Comp, G=Grab)</th> <th style="width: 10%;">Matrix</th> <th style="width: 10%;">Total # of Cont.</th> <th style="width: 10%;">SM5310B: Total Organic Carbon (field filtered)</th> <th style="width: 10%;">SM5310B: Dissolved Organic Carbon (field filtered)</th> <th style="width: 10%;">SM4500 S 2D: Sulfide (dissolved; field filtered)</th> <th style="width: 10%;">SM2540D: Total Suspended Solids (TSS)</th> <th style="width: 10%;">6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*</th> <th style="width: 10%;">300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**</th> <th style="width: 10%;">300.0: Nitrate and Nitrite (dissolved; field filtered)</th> <th style="width: 10%;">SM2320B: Alkalinity (field filtered)***</th> <th style="width: 10%;">365.1: Major Anions (Orthophosphate; dissolved; field filtered)</th> <th style="width: 10%;">6020A: Arsenic (total)</th> <th style="width: 10%;">6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)</th> <th style="width: 10%;">8260D SIM: Pentachlorophenol</th> <th style="width: 10%;">1638M: Arsenic (total)</th> <th style="width: 10%;">1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***</th> <th style="width: 10%;">Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)</th> <th style="width: 10%;">Sample Specific Notes</th> </tr> </thead> <tbody> <tr> <td>MW004-E4</td> <td>2/21/17</td> <td>1540</td> <td>80</td> <td>G</td> <td>W</td> <td></td> <td>X</td> <td>X</td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td></td> </tr> <tr> <td>MW002-E4</td> <td>↓</td> <td>1740</td> <td>807</td> <td>↓</td> <td>↓</td> <td></td> <td>X</td> <td>X</td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td></td> </tr> <tr> <td>MW001-E4</td> <td>↓</td> <td>1715</td> <td>702</td> <td>↓</td> <td>↓</td> <td></td> <td>X</td> <td>X</td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td></td> </tr> <tr> <td>HC002-E4</td> <td>2/21/17</td> <td>1055</td> <td>515</td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>B001R-E4</td> <td>↓</td> <td>1050</td> <td>1217</td> <td>↓</td> <td>↓</td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>B003R-E4</td> <td>↓</td> <td>1315</td> <td>3481</td> <td>↓</td> <td>↓</td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td></td> </tr> </tbody> </table>										Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon (field filtered)	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes	MW004-E4	2/21/17	1540	80	G	W		X	X		X								X	X	X		MW002-E4	↓	1740	807	↓	↓		X	X		X								X	X	X		MW001-E4	↓	1715	702	↓	↓		X	X		X								X	X	X		HC002-E4	2/21/17	1055	515				X	X	X	X	X	X	X	X					X	X	X	B001R-E4	↓	1050	1217	↓	↓		X	X	X	X	X	X	X	X					X	X	X	B003R-E4	↓	1315	3481	↓	↓		X	X	X	X									X	X	
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B003R-E4	↓	1315	3481	↓	↓		X	X	X	X									X	X																																																																																																																																																				
				 580-66220 Chain of Custody										cooler 1 TB Cooler IR4 Cor 5.2 Unc 5.8 Cooler Disc 14 blue white Lab WebPacks Packing bubble Oil drop 40 CS																																																																																																																																																										
<b>Possible Hazard Identification:</b> Are samples hazardous? <input checked="" type="checkbox"/> No If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic select hazard(s): Relinquished by: <u>Kenee Fowler</u> Date/Time: <u>2/21/17 1430</u>		Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year										Received by: <u>Michael M. Barrett</u> Date/Time: <u>2/21/17 1429</u> Received by: _____ Date/Time: _____ Received in Laboratory by: _____ Date/Time: _____																																																																																																																																																												
Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other      Tracking #: _____		<b>Special Instructions/QC Requirements</b> *Major Cations include calcium, magnesium, potassium, and sodium. **Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. ***Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3. Please contact Cindy Ryals at 971-200-8531 with any questions.																																																																																																																																																																						

Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PM	Carrier Tracking No(s)	COC No:				
Company: TestAmerica Laboratories, Inc.		Phone:	Cruz, Sheri L	State of Origin:	580-44523.1				
Address: 4955 Yarrow Street,		E-Mail: sheri.cruz@testamericainc.com		Page:	Page 1 of 1				
City: Anvada		Accreditations Required (See note):		Job #:	580-66220-1				
State, Zip: CO, 80002		State Program - Washington		<b>Preservation Codes:</b>					
Phone: 303-736-0100(Tel) 303-431-7171(Fax)		Due Date Requested:		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:					
Email:		TAT Requested (days):		M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)					
Project Name: Parcel 15 - POT		PO #:		Total Number of containers					
Site: S50W#:		WO #:		Special Instructions/Note:					
		Project #: 58009703							
		SSOW#:							
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=Solid, O=Organic, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_S2 D/FIELD_FLTRD Dissolved Sulfide, field-filtered	Total Number of containers	Special Instructions/Note:
HC002-E4 (580-66220-4)	2/21/17	10:55 Pacific	Water	Water	X	X		1	
B001R-E4 (580-66220-5)	2/21/17	10:50 Pacific	Water	Water	X	X		1	
B003R-E4 (580-66220-6)	2/21/17	13:15 Pacific	Water	Water	X	X		1	
<p>Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte &amp; accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix, being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.</p>									
<p><b>Possible Hazard Identification</b></p> <p>Unconfirmed</p> <p>Deliverable Requested: I, II, III, IV, Other (specify) _____</p> <p>Primary Deliverable Rank: 2</p> <p>Empty Kit Relinquished by: _____ Date: _____</p> <p>Relinquished by: <i>B. Hall</i> Date/Time: <i>2.22.17 1430</i></p> <p>Relinquished by: _____ Date/Time: _____</p> <p>Relinquished by: _____ Date/Time: _____</p> <p>Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Custody Seal No.: _____</p>									
<p><b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b></p> <p><input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p> <p>Special Instructions/OC Requirements: _____</p> <p>Method of Shipment: _____</p> <p>Relinquished by: <i>SEA TA</i> Date/Time: <i>2/23/17</i> Company: <i>SEA TA</i></p> <p>Relinquished by: _____ Date/Time: <i>2/23/17 1005</i> Company: <i>DAD</i></p> <p>Relinquished by: _____ Date/Time: _____ Company: _____</p> <p>Cooler Temperature(s) °C and Other Remarks: <i>0.8 to 0.0 F#7 transferred by Dan 2/23/17</i></p>									



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-66220-1

**Login Number: 66220**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	ID on container does not match the COC. Logged in per sample container(Sample#2)
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-66220-1

**Login Number: 66220**  
**List Number: 2**  
**Creator: White, Denise E**

**List Source: TestAmerica Denver**  
**List Creation: 02/23/17 02:37 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-66234-1  
Client Project/Site: Parcel 15 - POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Erin Carroll Hughes



Authorized for release by:  
3/23/2017 5:05:47 PM  
Kristine Allen, Manager of Project Management  
(253)248-4970  
[kristine.allen@testamericainc.com](mailto:kristine.allen@testamericainc.com)

Designee for  
Sheri Cruz, Project Manager I  
(253)922-2310  
[sheri.cruz@testamericainc.com](mailto:sheri.cruz@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

**Job ID: 580-66234-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-66234-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 2/22/2017 10:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 2.8° C.

#### Receipt Exceptions

A container (1L unpreserved) for TSS analysis was not received for Sample WCTPW5MB-E4 (580-66234-8)

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) SM 5310B: Dissolved Organic Carbon was detected in method blank MB 580-240559/3 greater than the method detection limit but less than the reporting limit; the data has been qualified and reported.

Method(s) SM 2540D: Insufficient sample volume was provided to produce results within the specifications of SM 2540D which requires at least 2.5 mg dried residue with a sample volume not to exceed 1L. A sample volume less than 1L, that yielded less than 2.5 mg dried residue, was provided for the following sample: WCTPW5MB-E4 (580-66234-8).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Subcontract Work

Methods Major Ions (Br,Cl,F,SO4), field-filtered, Major Ions (NO3, NO2), field filtered: These methods were subcontracted to Analytical Resources, Inc. The subcontract laboratory certifications are different from that of the facility issuing the final report.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

**Client Sample ID: WCTPW001A-10-E4**

**Lab Sample ID: 580-66234-1**

**Date Collected: 02/21/17 16:50**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>39</b>		2.0	0.38	mg/L			03/16/17 13:25	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>180</b>		2.5	2.5	mg/L			02/24/17 12:18	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:04	1
<b>Dissolved Organic Carbon</b>	<b>22</b>	<b>B</b>	2.0	0.38	mg/L			03/14/17 23:14	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			02/22/17 15:01	1
<b>Alkalinity</b>	<b>420</b>		5.0	5.0	mg/L			03/06/17 08:38	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>420</b>		5.0	5.0	mg/L			03/06/17 08:38	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

**Client Sample ID: WCTPW001B-10-E4**

**Lab Sample ID: 580-66234-2**

**Date Collected: 02/21/17 17:05**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

## Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	26		5.0	1.4	ug/L		03/17/17 10:40	03/20/17 17:35	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	4.0		2.0	0.38	mg/L			03/16/17 13:25	2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	39		2.0	2.0	mg/L			02/25/17 14:55	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:04	1

Dissolved Organic Carbon	5.0	B	2.0	0.38	mg/L			03/14/17 23:14	2
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Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.19		0.10	0.10	mg/L			02/22/17 15:01	1

Alkalinity	83		5.0	5.0	mg/L			03/06/17 08:38	1
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Bicarbonate Alkalinity as CaCO3	83		5.0	5.0	mg/L			03/06/17 08:38	1
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Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
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Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
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# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

**Client Sample ID: WCTPW002A-10-E4**

**Lab Sample ID: 580-66234-3**

**Date Collected: 02/21/17 17:50**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>2.4</b>		2.0	0.38	mg/L			03/16/17 20:32	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>24</b>		2.0	2.0	mg/L			02/25/17 14:55	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:04	1
<b>Dissolved Organic Carbon</b>	<b>4.0</b>	<b>B</b>	2.0	0.38	mg/L			03/14/17 23:14	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>ortho-Phosphate</b>	<b>0.17</b>		0.10	0.10	mg/L			02/22/17 15:01	1
<b>Alkalinity</b>	<b>110</b>		5.0	5.0	mg/L			03/06/17 08:38	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>110</b>		5.0	5.0	mg/L			03/06/17 08:38	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

**Client Sample ID: WCTPW002B-10-E4**

**Lab Sample ID: 580-66234-4**

**Date Collected: 02/21/17 18:20**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>3.3</b>		2.0	0.38	mg/L			03/16/17 20:32	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>47</b>		2.0	2.0	mg/L			02/25/17 14:55	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:05	1
<b>Dissolved Organic Carbon</b>	<b>4.1</b>		2.0	0.38	mg/L			03/15/17 21:48	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>ortho-Phosphate</b>	<b>0.11</b>		0.10	0.10	mg/L			02/22/17 15:01	1
<b>Alkalinity</b>	<b>44</b>		5.0	5.0	mg/L			03/06/17 08:38	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>44</b>		5.0	5.0	mg/L			03/06/17 08:38	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

**Client Sample ID: WCTPW003A-10-E4**

**Lab Sample ID: 580-66234-5**

**Date Collected: 02/21/17 18:50**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>3.3</b>		1.0	0.19	mg/L			03/16/17 20:32	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>55</b>		2.0	2.0	mg/L			02/25/17 14:55	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:05	1
<b>Dissolved Organic Carbon</b>	<b>5.8</b>		1.0	0.19	mg/L			03/15/17 21:48	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			02/22/17 15:01	1
<b>Alkalinity</b>	<b>250</b>		5.0	5.0	mg/L			03/06/17 08:38	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>250</b>		5.0	5.0	mg/L			03/06/17 08:38	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

**Client Sample ID: WCTPW003B-10-E4**

**Lab Sample ID: 580-66234-6**

**Date Collected: 02/21/17 19:40**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>4.3</b>		1.0	0.19	mg/L			03/16/17 20:32	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>86</b>		2.0	2.0	mg/L			02/25/17 14:55	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:05	1
<b>Dissolved Organic Carbon</b>	<b>4.3</b>		1.0	0.19	mg/L			03/15/17 21:48	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			02/22/17 15:01	1
<b>Alkalinity</b>	<b>110</b>		5.0	5.0	mg/L			03/06/17 08:38	1
<b>Bicarbonate Alkalinity as CaCO3</b>	<b>110</b>		5.0	5.0	mg/L			03/06/17 08:38	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

**Client Sample ID: WCTPW004A-10-E4**

**Lab Sample ID: 580-66234-7**

**Date Collected: 02/21/17 20:05**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.091	0.091	ug/L		02/23/17 14:56	02/27/17 14:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	70		44 - 125				02/23/17 14:56	02/27/17 14:05	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	11		2.0	0.38	mg/L			03/16/17 20:32	2
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	87		3.7	3.7	mg/L			02/25/17 14:55	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	12		2.0	0.38	mg/L			03/15/17 21:48	2

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

**Client Sample ID: WCTPW5MB-E4**

**Lab Sample ID: 580-66234-8**

**Date Collected: 02/21/17 20:40**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.089		0.081	0.081	ug/L		02/23/17 14:56	02/27/17 14:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	70		44 - 125				02/23/17 14:56	02/27/17 14:27	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	5.6		1.0	0.19	mg/L			03/16/17 20:32	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.2	4.2	mg/L			02/28/17 10:01	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:05	1
Dissolved Organic Carbon	5.4		1.0	0.19	mg/L			03/15/17 21:48	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

**Client Sample ID: MW011-E4**

**Lab Sample ID: 580-66234-9**

**Date Collected: 02/21/17 14:15**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>48</b>		4.0	0.76	mg/L			03/16/17 20:32	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>65</b>		2.0	2.0	mg/L			02/25/17 14:55	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:05	1
<b>Dissolved Organic Carbon</b>	<b>48</b>		4.0	0.76	mg/L			03/15/17 21:48	4



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-239160/1-A**  
**Matrix: Water**  
**Analysis Batch: 239355**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 239160**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.080	0.080	ug/L		02/23/17 14:56	02/27/17 13:43	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	75		44 - 125				02/23/17 14:56	02/27/17 13:43	1

**Lab Sample ID: LCS 580-239160/2-A**  
**Matrix: Water**  
**Analysis Batch: 239290**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 239160**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Pentachlorophenol	4.00	3.90		ug/L		98	30 - 149		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
2,4,6-Tribromophenol	73		44 - 125						

**Lab Sample ID: LCSD 580-239160/3-A**  
**Matrix: Water**  
**Analysis Batch: 239290**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 239160**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	4.00	3.30		ug/L		82	30 - 149	17	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	71		44 - 125						

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 580-240763/22-A**  
**Matrix: Water**  
**Analysis Batch: 240960**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 240763**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.27	ug/L		03/17/17 10:40	03/20/17 15:11	1

**Lab Sample ID: LCS 580-240763/23-A**  
**Matrix: Water**  
**Analysis Batch: 240960**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 240763**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Arsenic	4000	3970		ug/L		99	80 - 120		

**Lab Sample ID: LCSD 580-240763/24-A**  
**Matrix: Water**  
**Analysis Batch: 240960**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 240763**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	4000	4010		ug/L		100	80 - 120	1	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

## Method: 365.1 - Phosphorus, Ortho

**Lab Sample ID: MB 580-238996/1**  
**Matrix: Water**  
**Analysis Batch: 238996**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.10	0.10	mg/L			02/22/17 11:19	1

**Lab Sample ID: LCS 580-238996/2**  
**Matrix: Water**  
**Analysis Batch: 238996**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	2.00	1.96		mg/L		98	90 - 110

## Method: SM 2320B - Alkalinity

**Lab Sample ID: LCS 580-239854/2**  
**Matrix: Water**  
**Analysis Batch: 239854**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	103		mg/L		103	85 - 115

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 580-239238/1**  
**Matrix: Water**  
**Analysis Batch: 239238**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			02/24/17 12:18	1

**Lab Sample ID: LCS 580-239238/2**  
**Matrix: Water**  
**Analysis Batch: 239238**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	22.4		mg/L		81	70.6 - 120

**Lab Sample ID: MB 580-239301/1**  
**Matrix: Water**  
**Analysis Batch: 239301**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			02/25/17 14:55	1

**Lab Sample ID: LCS 580-239301/2**  
**Matrix: Water**  
**Analysis Batch: 239301**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	23.2		mg/L		84	70.6 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

## Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: MB 580-239411/1  
Matrix: Water  
Analysis Batch: 239411

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			02/28/17 10:01	1

Lab Sample ID: LCS 580-239411/2  
Matrix: Water  
Analysis Batch: 239411

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	26.0		mg/L		94	70.6 - 120

## Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-363618/3  
Matrix: Water  
Analysis Batch: 363618

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:04	1

Lab Sample ID: LCS 280-363618/4  
Matrix: Water  
Analysis Batch: 363618

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.460	0.413		mg/L		90	80 - 119

Lab Sample ID: LCSD 280-363618/5  
Matrix: Water  
Analysis Batch: 363618

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.460	0.416		mg/L		90	80 - 119	1	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-240759/3  
Matrix: Water  
Analysis Batch: 240759

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			03/16/17 13:25	1

Lab Sample ID: LCS 580-240759/4  
Matrix: Water  
Analysis Batch: 240759

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.62		mg/L		96	85 - 115

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: MB 580-240760/3**  
**Matrix: Water**  
**Analysis Batch: 240760**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			03/16/17 20:32	1

**Lab Sample ID: LCS 580-240760/4**  
**Matrix: Water**  
**Analysis Batch: 240760**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.92		mg/L		99	85 - 115

**Lab Sample ID: 580-66234-3 MS**  
**Matrix: Water**  
**Analysis Batch: 240760**

**Client Sample ID: WCTPW002A-10-E4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	2.4		20.0	22.5		mg/L		100	85 - 115

**Lab Sample ID: 580-66234-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 240760**

**Client Sample ID: WCTPW002A-10-E4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	2.4		20.0	22.6		mg/L		101	85 - 115	0	20

**Lab Sample ID: 580-66234-3 DU**  
**Matrix: Water**  
**Analysis Batch: 240760**

**Client Sample ID: WCTPW002A-10-E4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	2.4		2.44		mg/L		0	20

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-240559/3**  
**Matrix: Water**  
**Analysis Batch: 240559**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	0.243	J	1.0	0.19	mg/L			03/14/17 23:14	1

**Lab Sample ID: LCS 580-240559/4**  
**Matrix: Water**  
**Analysis Batch: 240559**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.1		mg/L		101	85 - 115

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

**Lab Sample ID: MB 580-240657/3**  
**Matrix: Water**  
**Analysis Batch: 240657**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			03/15/17 21:48	1

**Lab Sample ID: LCS 580-240657/4**  
**Matrix: Water**  
**Analysis Batch: 240657**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.1		mg/L		101	85 - 115

**Lab Sample ID: 580-66234-4 MS**  
**Matrix: Water**  
**Analysis Batch: 240657**

**Client Sample ID: WCTPW002B-10-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	4.1		20.0	24.0		mg/L		100	85 - 115

**Lab Sample ID: 580-66234-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 240657**

**Client Sample ID: WCTPW002B-10-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	4.1		20.0	24.1		mg/L		100	85 - 115	0	20

**Lab Sample ID: 580-66234-4 DU**  
**Matrix: Water**  
**Analysis Batch: 240657**

**Client Sample ID: WCTPW002B-10-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	4.1		4.01		mg/L		1	20



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

**Client Sample ID: WCTPW001A-10-E4**

**Lab Sample ID: 580-66234-1**

**Date Collected: 02/21/17 16:50**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	365.1		1	238996	02/22/17 15:01	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/06/17 08:38	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239238	02/24/17 12:18	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363618	02/27/17 20:04	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		2	240559	03/14/17 23:14	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	240759	03/16/17 13:25	Z1T	TAL SEA

**Client Sample ID: WCTPW001B-10-E4**

**Lab Sample ID: 580-66234-2**

**Date Collected: 02/21/17 17:05**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			240763	03/17/17 10:40	ADB	TAL SEA
Total Recoverable	Analysis	6020A		5	240960	03/20/17 17:35	FCW	TAL SEA
Dissolved	Analysis	365.1		1	238996	02/22/17 15:01	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/06/17 08:38	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239301	02/25/17 14:55	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363618	02/27/17 20:04	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		2	240559	03/14/17 23:14	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	240759	03/16/17 13:25	Z1T	TAL SEA

**Client Sample ID: WCTPW002A-10-E4**

**Lab Sample ID: 580-66234-3**

**Date Collected: 02/21/17 17:50**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	365.1		1	238996	02/22/17 15:01	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/06/17 08:38	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239301	02/25/17 14:55	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363618	02/27/17 20:04	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		2	240559	03/14/17 23:14	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	240760	03/16/17 20:32	Z1T	TAL SEA

**Client Sample ID: WCTPW002B-10-E4**

**Lab Sample ID: 580-66234-4**

**Date Collected: 02/21/17 18:20**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	365.1		1	238996	02/22/17 15:01	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/06/17 08:38	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239301	02/25/17 14:55	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 4500 S2 D		1	363618	02/27/17 20:05	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		2	240657	03/15/17 21:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	240760	03/16/17 20:32	Z1T	TAL SEA

**Client Sample ID: WCTPW003A-10-E4**

**Lab Sample ID: 580-66234-5**

Date Collected: 02/21/17 18:50

Matrix: Water

Date Received: 02/22/17 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	365.1		1	238996	02/22/17 15:01	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/06/17 08:38	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239301	02/25/17 14:55	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363618	02/27/17 20:05	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		1	240657	03/15/17 21:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	240760	03/16/17 20:32	Z1T	TAL SEA

**Client Sample ID: WCTPW003B-10-E4**

**Lab Sample ID: 580-66234-6**

Date Collected: 02/21/17 19:40

Matrix: Water

Date Received: 02/22/17 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	365.1		1	238996	02/22/17 15:01	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/06/17 08:38	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239301	02/25/17 14:55	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363618	02/27/17 20:05	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		1	240657	03/15/17 21:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	240760	03/16/17 20:32	Z1T	TAL SEA

**Client Sample ID: WCTPW004A-10-E4**

**Lab Sample ID: 580-66234-7**

Date Collected: 02/21/17 20:05

Matrix: Water

Date Received: 02/22/17 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			239160	02/23/17 14:56	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		1	239355	02/27/17 14:05	JCP	TAL SEA
Total/NA	Analysis	SM 2540D		1	239301	02/25/17 14:55	Z1T	TAL SEA
Dissolved	Analysis	SM 5310B		2	240657	03/15/17 21:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		2	240760	03/16/17 20:32	Z1T	TAL SEA

**Client Sample ID: WCTPW5MB-E4**

**Lab Sample ID: 580-66234-8**

Date Collected: 02/21/17 20:40

Matrix: Water

Date Received: 02/22/17 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			239160	02/23/17 14:56	JCV	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

**Client Sample ID: WCTPW5MB-E4**

**Lab Sample ID: 580-66234-8**

**Date Collected: 02/21/17 20:40**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270D SIM		1	239355	02/27/17 14:27	JCP	TAL SEA
Total/NA	Analysis	SM 2540D		1	239411	02/28/17 10:01	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363618	02/27/17 20:05	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		1	240657	03/15/17 21:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	240760	03/16/17 20:32	Z1T	TAL SEA

**Client Sample ID: MW011-E4**

**Lab Sample ID: 580-66234-9**

**Date Collected: 02/21/17 14:15**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	239301	02/25/17 14:55	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363618	02/27/17 20:05	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		4	240657	03/15/17 21:48	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	240760	03/16/17 20:32	Z1T	TAL SEA

**Laboratory References:**

SC0056 = Analytical Resources, Inc, 4611 South 134th Place, Suite 100, Tukwila, WA 98168, TEL (206)695-6200

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-18

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
6020A	3005A	Water	Arsenic
SM 2320B		Water	Hydroxide Alkalinity as CaCO3
SM 5310B		Water	Dissolved Organic Carbon

## Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-02-17

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-66234-1	WCTPW001A-10-E4	Water	02/21/17 16:50	02/22/17 10:40
580-66234-2	WCTPW001B-10-E4	Water	02/21/17 17:05	02/22/17 10:40
580-66234-3	WCTPW002A-10-E4	Water	02/21/17 17:50	02/22/17 10:40
580-66234-4	WCTPW002B-10-E4	Water	02/21/17 18:20	02/22/17 10:40
580-66234-5	WCTPW003A-10-E4	Water	02/21/17 18:50	02/22/17 10:40
580-66234-6	WCTPW003B-10-E4	Water	02/21/17 19:40	02/22/17 10:40
580-66234-7	WCTPW004A-10-E4	Water	02/21/17 20:05	02/22/17 10:40
580-66234-8	WCTPW5MB-E4	Water	02/21/17 20:40	02/22/17 10:40
580-66234-9	MW011-E4	Water	02/21/17 14:15	02/22/17 10:40



10 March 2017

Sheri Cruz  
Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

RE: Parcel 15 - POT

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)  
17C0011

Associated SDG ID(s)  
N/A

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I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Mark Harris, Project Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b> Shipping/Receiving Analytical Resources, Inc. 4611 South 134th Place, Suite 100, Tukwila, WA, 98168 Phone: 206-695-6200(Tel) Email: Project Name: 58009703 Parcel 15 - POT Site:		Lab PM: Cruz, Sheri L E-Mail: sheri.cruz@testamericainc.com State of Origin: Washington Carrier Tracking No(s): 580-44671.1 Page: Page 1 of 1 Job #: 580-66234-1								
<b>Due Date Requested:</b> 3/10/2017 <b>TAT Requested (days):</b>		<b>Analysis Requested:</b> A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Arsenic H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:								
<b>Sample Identification - Client ID</b>		<b>Preservation Codes:</b> M - Hexane N - None O - AsNO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - PH 4-5 X - EDTA Z - other (specify)								
Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Major Ions (NO3, NO2), field filtered)/ 300 (NO3, NO2, field filtered)/ EIM L2	SUB (Major Ions (Br, Cl, F, SO4), field filtered)/ 300 (Br, Cl, F, SO4), field filtered; EIM;	Total Number of Containers	Special Instructions/Note:
WCTPW001A-10-E4	2/21/17	16:50 Pacific	Water	Water	X	X	X	X	1	300 (NO3, NO2), field filtered; EIM L2
WCTPW001B-10-E4	2/21/17	17:05 Pacific	Water	Water	X	X	X	X	1	300 (NO3, NO2), field filtered; EIM L2
WCTPW002A-10-E4	2/21/17	17:50 Pacific	Water	Water	X	X	X	X	1	300 (NO3, NO2), field filtered; EIM L2
WCTPW002B-10-E4	2/21/17	18:20 Pacific	Water	Water	X	X	X	X	1	300 (NO3, NO2), field filtered; EIM L2
WCTPW003A-10-E4	2/21/17	18:50 Pacific	Water	Water	X	X	X	X	1	300 (NO3, NO2), field filtered; EIM L2
WCTPW003B-10-E4	2/21/17	19:40 Pacific	Water	Water	X	X	X	X	1	300 (NO3, NO2), field filtered; EIM L2

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2  
 Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_  
 Relinquished by: *SEA* Date: 3/1/17  
 Relinquished by: *Beatty Ball* Date: 3/1/17 1243  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Custody Seals Intact: \_\_\_\_\_  
 Δ Yes Δ No  
 Custody Seal No.: \_\_\_\_\_  
 Cooler Temperature(s) °C and Other Remarks: \_\_\_\_\_

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Special Instructions/QC Requirements:





# Cooler Receipt Form

ARI Client: Test America

Project Name: Parcel 15-POT

COC No(s): \_\_\_\_\_ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: 17C0011

Tracking No: \_\_\_\_\_ NA

**Preliminary Examination Phase:**

Were intact, properly signed and dated custody seals attached to the outside of cooler? YES NO  
 Were custody papers included with the cooler? YES NO  
 Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) \_\_\_\_\_

Time: 12:43 4.9

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D005276

Cooler Accepted by: B.H. Date: 3/1/17 Time: 12:43

*Complete custody forms and attach all shipping documents*

**Log-In Phase:**

Was a temperature blank included in the cooler? YES NO  
 What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: \_\_\_\_\_  
 Was sufficient ice used (if appropriate)? NA YES NO  
 Were all bottles sealed in individual plastic bags? YES NO  
 Did all bottles arrive in good condition (unbroken)? YES NO  
 Were all bottle labels complete and legible? YES NO  
 Did the number of containers listed on COC match with the number of containers received? YES NO  
 Did all bottle labels and tags agree with custody papers? YES NO  
 Were all bottles used correct for the requested analyses? YES NO  
 Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO  
 Were all VOC vials free of air bubbles? NA YES NO  
 Was sufficient amount of sample sent in each bottle? YES NO  
 Date VOC Trip Blank was made at ARI: \_\_\_\_\_ NA  
 Was Sample Split by ARI: NA YES Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

Samples Logged by: B.H. Date: 3/1/17 Time: 13:13

**\*\* Notify Project Manager of discrepancies or concerns \*\***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

**Additional Notes, Discrepancies, & Resolutions:**

By: \_\_\_\_\_ Date: \_\_\_\_\_

<p>Small Air Bubbles = 2-3mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles &gt; 4 mm</p>	<p>Small → "sm" (&lt; 2 mm)</p> <p>Peabubbles → "pb" (2 to &lt; 4 mm)</p> <p>Large → "lg" (4 to &lt; 6 mm)</p> <p>Headspace → "hs" (&gt; 6 mm)</p>
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Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 - POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

**Reported:**  
10-Mar-2017 14:35

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WCTPW001A-10-E4	17C0011-01	Water	21-Feb-2017 16:50	01-Mar-2017 12:43
WCTPW001B-10-E4	17C0011-02	Water	21-Feb-2017 17:05	01-Mar-2017 12:43
WCTPW002A-10-E4	17C0011-03	Water	21-Feb-2017 17:50	01-Mar-2017 12:43
WCTPW002B-10-E4	17C0011-04	Water	21-Feb-2017 18:20	01-Mar-2017 12:43
WCTPW003A-10-E4	17C0011-05	Water	21-Feb-2017 18:50	01-Mar-2017 12:43
WCTPW003B-10-E4	17C0011-06	Water	21-Feb-2017 19:40	01-Mar-2017 12:43





Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 - POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

Reported:  
10-Mar-2017 14:35

## Case Narrative

**Client:** Test America-Tacoma  
**Project:** Parcel 15 - POT  
**Workorder:** 17C0011

### Sample receipt

6 samples were received 01-Mar-2017 12:43 under ARI work order 17C0011. For details regarding sample receipt, please refer to the Cooler Receipt Form.

### Wet Chemistry

It was noted upon sample receipt that the holding time for nitrate and nitrite had expired. These samples were prepared and analyzed as quickly as possible for all parameters. The samples were prepared and analyzed within the recommended holding times for all remaining anions.

All initial and continuing calibrations were within method requirements.

No target compounds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within acceptable QC limits for the LCS.

A matrix spike (MS) was prepared and analyzed in conjunction with sample 'WCTPW001A-10-E4'. The percent recoveries for all anions were within acceptable QC limits for the MS.

A matrix duplicate (MD) was prepared and analyzed in conjunction with sample 'WCTPW001A-10-E4'. The RPDs for all anions were within acceptable QC limits for the MD.



Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW001A-10-E4**  
**17C0011-01 (Water)**

**Wet Chemistry**

Method: EPA 300.0 Sampled: 02/21/2017 16:50  
Instrument: DX2100 Analyzed: 03/01/2017 21:17

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFC0021 Sample Size: 5 mL  
Prepared: 03/01/2017 13:44 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	<b>0.607</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	ND	mg/L	U, H

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	U, H





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW001A-10-E4**  
**17C0011-01RE1 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 16:50
Instrument: DX2100	Analyzed: 03/02/2017 16:30
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1000	100	<b>2760</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW001A-10-E4**  
**17C0011-01RE2 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 16:50
Instrument: DX2100	Analyzed: 03/02/2017 20:52
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	100	10.0	427	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW001A-10-E4**  
**17C0011-01RE4 (Water)**

**Wet Chemistry**

Method: EPA 300.0  
Instrument: DX2100

Sampled: 02/21/2017 16:50  
Analyzed: 03/03/2017 14:05

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFC0021  
Prepared: 03/01/2017 13:44

Sample Size: 5 mL  
Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	5	0.500	<b>9.84</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW001B-10-E4**  
**17C0011-02 (Water)**

**Wet Chemistry**

Method: EPA 300.0 Sampled: 02/21/2017 17:05  
Instrument: DX2100 Analyzed: 03/01/2017 22:19

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFC0021 Sample Size: 5 mL  
Prepared: 03/01/2017 13:44 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	<b>0.282</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	ND	mg/L	U, H

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	U, H





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW001B-10-E4**  
**17C0011-02RE1 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 17:05
Instrument: DX2100	Analyzed: 03/02/2017 17:32
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1000	100	<b>3390</b>	mg/L	D







Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW001B-10-E4**  
**17C0011-02RE2 (Water)**

**Wet Chemistry**

Method: EPA 300.0  
Instrument: DX2100

Sampled: 02/21/2017 17:05  
Analyzed: 03/02/2017 21:53

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFC0021 Sample Size: 5 mL  
Prepared: 03/01/2017 13:44 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	100	10.0	<b>407</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW001B-10-E4**  
**17C0011-02RE4 (Water)**

**Wet Chemistry**

Method: EPA 300.0  
Instrument: DX2100

Sampled: 02/21/2017 17:05  
Analyzed: 03/03/2017 14:44

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFC0021 Sample Size: 5 mL  
Prepared: 03/01/2017 13:44 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	5	0.500	<b>12.0</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW002A-10-E4**  
**17C0011-03 (Water)**

**Wet Chemistry**

Method: EPA 300.0 Sampled: 02/21/2017 17:50  
Instrument: DX2100 Analyzed: 03/01/2017 22:40

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFC0021 Sample Size: 5 mL  
Prepared: 03/01/2017 13:44 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	<b>0.130</b>	mg/L	H

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	<b>0.452</b>	mg/L	H





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW002A-10-E4**  
**17C0011-03RE1 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 17:50
Instrument: DX2100	Analyzed: 03/02/2017 17:53
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	2000	200	<b>9360</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW002A-10-E4**  
**17C0011-03RE4 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 17:50
Instrument: DX2100	Analyzed: 03/03/2017 13:26
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	500	50.0	<b>1520</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW002A-10-E4**  
**17C0011-03RE6 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 17:50
Instrument: DX2100	Analyzed: 03/09/2017 21:56
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	10	1.00	<b>32.6</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW002B-10-E4**  
**17C0011-04 (Water)**

**Wet Chemistry**

Method: EPA 300.0 Sampled: 02/21/2017 18:20  
Instrument: DX2100 Analyzed: 03/01/2017 23:00

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFC0021 Sample Size: 5 mL  
Prepared: 03/01/2017 13:44 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	ND	mg/L	U, H

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	U, H





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW002B-10-E4**  
**17C0011-04RE1 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 18:20
Instrument: DX2100	Analyzed: 03/02/2017 18:13
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	2000	200	<b>5520</b>	mg/L	D







Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW002B-10-E4**  
**17C0011-04RE2 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 18:20
Instrument: DX2100	Analyzed: 03/02/2017 22:34
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	200	20.0	<b>800</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW002B-10-E4**  
**17C0011-04RE4 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 18:20
Instrument: DX2100	Analyzed: 03/03/2017 15:24
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	5	0.500	<b>20.5</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW003A-10-E4**  
**17C0011-05 (Water)**

**Wet Chemistry**

Method: EPA 300.0 Sampled: 02/21/2017 18:50  
Instrument: DX2100 Analyzed: 03/01/2017 23:19

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFC0021 Sample Size: 5 mL  
Prepared: 03/01/2017 13:44 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	ND	mg/L	U, H

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	U, H





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW003A-10-E4**  
**17C0011-05RE1 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 18:50
Instrument: DX2100	Analyzed: 03/02/2017 18:32
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	2000	200	<b>6700</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW003A-10-E4**  
**17C0011-05RE4 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 18:50
Instrument: DX2100	Analyzed: 03/03/2017 13:46
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	500	50.0	<b>1180</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW003A-10-E4**  
**17C0011-05RE5 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 18:50
Instrument: DX2100	Analyzed: 03/03/2017 15:44
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	5	0.500	<b>25.0</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	Reported: 10-Mar-2017 14:35
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**WCTPW003B-10-E4**  
**17C0011-06 (Water)**

**Wet Chemistry**

Method: EPA 300.0  
Instrument: DX2100

Sampled: 02/21/2017 19:40  
Analyzed: 03/01/2017 23:39

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFC0021 Sample Size: 5 mL  
Prepared: 03/01/2017 13:44 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	<b>0.216</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	ND	mg/L	U, H

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	U, H





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW003B-10-E4**  
**17C0011-06RE1 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 19:40
Instrument: DX2100	Analyzed: 03/02/2017 18:52
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	500	50.0	<b>2030</b>	mg/L	D







Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW003B-10-E4**  
**17C0011-06RE2 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 19:40
Instrument: DX2100	Analyzed: 03/02/2017 23:15
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	50	5.00	<b>161</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 10-Mar-2017 14:35
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**WCTPW003B-10-E4**  
**17C0011-06RE3 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/21/2017 19:40
Instrument: DX2100	Analyzed: 03/03/2017 02:34
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFC0021
	Sample Size: 5 mL
	Prepared: 03/01/2017 13:44
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	2	0.200	<b>6.47</b>	mg/L	D





Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 - POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

Reported:  
10-Mar-2017 14:35

Wet Chemistry - Quality Control

Batch BFC0021 - No Prep Wet Chem

Instrument: DX2100

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BFC0021-BLK1)</b> Prepared: 01-Mar-2017 Analyzed: 01-Mar-2017 17:17										
Bromide	ND	0.100	mg/L							U
Chloride	ND	0.100	mg/L							U
Fluoride	ND	0.100	mg/L							U
Nitrate-N	ND	0.100	mg/L							U
Nitrite-N	ND	0.100	mg/L							U
Sulfate	ND	0.100	mg/L							U
<b>LCS (BFC0021-BS1)</b> Prepared: 01-Mar-2017 Analyzed: 01-Mar-2017 17:36										
Bromide	2.94	0.100	mg/L	3.00		98.1 %	75-125			
Chloride	2.96	0.100	mg/L	3.00		98.7 %	75-125			
Fluoride	3.06	0.100	mg/L	3.00		102 %	75-125			
Nitrate-N	2.96	0.100	mg/L	3.00		98.5 %	75-125			
Nitrite-N	3.06	0.100	mg/L	3.00		102 %	75-125			
Sulfate	3.16	0.100	mg/L	3.00		105 %	75-125			
<b>Duplicate (BFC0021-DUP2)</b> Source: 17C0011-01 Prepared: 01-Mar-2017 Analyzed: 01-Mar-2017 21:38										
Fluoride	0.603	0.100	mg/L		0.607			0.66	20	
Nitrate-N	ND	0.100	mg/L		ND					U
Nitrite-N	ND	0.100	mg/L		ND					U
<b>Duplicate (BFC0021-DUP4)</b> Source: 17C0011-01RE1 Prepared: 01-Mar-2017 Analyzed: 02-Mar-2017 16:51										
Chloride	2750	100	mg/L		2760			0.07	20	D
<b>Duplicate (BFC0021-DUP5)</b> Source: 17C0011-01RE1 Prepared: 01-Mar-2017 Analyzed: 02-Mar-2017 17:12										
Chloride	2750	100	mg/L		2760			0.08	20	D
<b>Duplicate (BFC0021-DUP6)</b> Source: 17C0011-01RE2 Prepared: 01-Mar-2017 Analyzed: 02-Mar-2017 21:12										
Sulfate	427	10.0	mg/L		427			0.01	20	D
<b>Duplicate (BFC0021-DUP8)</b> Source: 17C0011-01RE4 Prepared: 01-Mar-2017 Analyzed: 03-Mar-2017 14:25										
Bromide	9.84	0.500	mg/L		9.84			0.01	20	D
<b>Matrix Spike (BFC0021-MS2)</b> Source: 17C0011-01 Prepared: 01-Mar-2017 Analyzed: 01-Mar-2017 21:59										
Fluoride	2.76	0.100	mg/L	2.00	0.607	108 %	75-125			
Nitrate-N	1.70	0.100	mg/L	2.00	ND	83.8 %	75-125			
Nitrite-N	1.90	0.100	mg/L	2.00	ND	95.0 %	75-125			



Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 - POT Project Number: 58009703 Project Manager: Sheri Cruz	Reported: 10-Mar-2017 14:35
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**Wet Chemistry - Quality Control**

**Batch BFC0021 - No Prep Wet Chem**

Instrument: DX2100

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike (BFC0021-MS5)</b>	<b>Source: 17C0011-01RE2</b>	Prepared: 01-Mar-2017	Analyzed: 02-Mar-2017 21:33							
Sulfate	924	20.0	mg/L	500	427	99.3 %	75-125			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike (BFC0021-MS6)</b>	<b>Source: 17C0011-01RE4</b>	Prepared: 01-Mar-2017	Analyzed: 03-Mar-2017 00:57							
Bromide	19.7	0.500	mg/L	10.0	9.84	98.6 %	75-125			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.





Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 - POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

**Reported:**  
10-Mar-2017 14:35

**Certified Analyses included in this Report**

Analyte	Certifications
<b>EPA 300.0 in Water</b>	
Bromide	DoD-ELAP,WADOE,NELAP
Chloride	DoD-ELAP,WADOE,WA-DW,NELAP
Fluoride	DoD-ELAP,WADOE,WA-DW
Nitrate-N	DoD-ELAP,WADOE,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WADOE,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,WA-DW,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017





Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 - POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

Reported:  
10-Mar-2017 14:35

### Notes and Definitions

- \* Flagged value is not within established control limits.
- D The reported value is from a dilution
- H Hold time violation - Hold time was exceeded.
- U This analyte is not detected above the applicable reporting or detection limit.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.



Loc: 580  
66234

55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

Field Sampler(s):

### Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
<b>Project Name:</b> Parcel 15 - POT	SDG: _____	<b>TestAmerica</b>		Brooks Ben Wozniak 206-753-6158
<b>Project # or PO #:</b> 603.002.014	Custody Seals intact?	<b>Brooks</b>		
<b>Project Manager:</b> Erin Hughes	Hand delivered?	<b>Analysis Requested</b>		
<b>Phone #:</b> 971-200-8528	Cooler Temp: _____ °C	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)
<b>Report to email:</b> echughes@gslws.com	Therm ID No.: _____ Therm Exp. _____	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**
<b>Analysis Turnaround Time:</b>		300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)
Standard 21 day TAT on Most Analyses		6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol
Rush 5 day on Dissolved Metals in Porewater		1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
WCTP001A-10-E4	2/21	1650	1503	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	R=Rush
WCTP001B-10-E4	2/21	1705	11,200	G	PW	13	X	X	X	X	X	X	X	X	X	X	X		X	R	*	*=if
WCTP002A-10-E4	2/21	1750	14976	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	diss As
WCTP002B-10-E4	2/21	1820	16082	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	736 ug/L
WCTP003A-10-E4	2/21	1850	7858	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	
WCTP003B-10-E4	2/21	1940	3435	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	
WCTP004A-10-E4	2/21	2005	596	G	PW	9	X	X		X								X	X	R	*	
WCTP005B-E4	2/21	2040	0	G	MB	7	X	X	X	X								X	X	X		
MW011-E4	2/21	1715	1457	G	GW	6	X	X	X	X								X	X			

**Possible Hazard Identification:** 580-66234 Chain of Custody

Are samples hazardous?  No

If yes,  Listed  Ignitable  Corrosive  Reactive  Toxic

select hazard(s):

Relinquished by: Kevin Fowler Date/Time: 2/22/17 1040

Received by: B. Hall B. Call SRATM Date/Time: 2.22.17 1040

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Special Instructions/QC Requirements**

\*Major Cations include calcium, magnesium, potassium, and sodium.

\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.

\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.

Please contact Cindy Ryals at 971-200-8531 with any questions.

TBZ Cooler Cor 0.8 Unc 1.7 TB Cooler JRY Cor 2.8 Unc 3.4

Cooler Dsc 1rs BW @Lab Cooler Dsc 1rs BW @Lab

Wet/Pack Packing Bubble Wet/Pack Packing Bubble

Pages of 61 W10 CK do W10 3/23/2017

**Cruz, Sheri**

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**From:** Renee Fowler <rfowler@gsiws.com>  
**Sent:** Wednesday, February 22, 2017 12:10 PM  
**To:** Cruz, Sheri; 'Ben Wozniak'  
**Cc:** Erin Carroll Hughes  
**Subject:** Parcel 15: Mw-11 conductivity

Ben and Sheri,

*MW011-E4 Sample time of 1415*  
The Port of Tacoma sample for MW11 was dropped off at TA today. The field conductivity was accidentally left off the COC but was  $1457 \mu\text{S}/\text{cm}$

Thanks,  
Renee

Sent from my Verizon Wireless 4G LTE smartphone





**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler:		Lab PM:		Carrier Tracking No(s):	
Client Contact: Shipping/Receiving		Phone:		Cruz, Sheri L		580-44591.1	
Company: TestAmerica Laboratories, Inc.		E-Mail: sheri.cruz@testamericainc.com		State of Origin: Washington		Page: 1 of 1	
Address: 4955 Yarrow Street, City: Arvada State, Zip: CO, 80002 Phone: 303-736-0100(Tel) 303-431-7171(Fax) E-mail:		Accreditations Required (See note): State Program - Washington		Job #: 580-66234-1		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Due Date Requested: 3/16/2017		TAT Requested (days):		Analysis Requested		Total Number of containers	
PO #:		Matrix (Water, Solid, D-Water, A-Air)		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)	
WO #:		Sample Type (C=comp, G=grab)		SM4500_S2 D/FIELD_FLTRD Dissolved Sulfide, field-		Filtered	
Project #: 58009703		Sample Time		Sample Date		Preservation Code	
SSOW#:		Sample Date		Sample Time		Special Instructions/Note:	
<b>Sample Identification - Client ID (Lab ID)</b>		Sample Date		Sample Time		Matrix	
WCTPW001A-10-E4 (580-66234-1)		2/21/17		16:50 Pacific		Water	
WCTPW001B-10-E4 (580-66234-2)		2/21/17		17:05 Pacific		Water	
WCTPW002A-10-E4 (580-66234-3)		2/21/17		17:50 Pacific		Water	
WCTPW002B-10-E4 (580-66234-4)		2/21/17		18:20 Pacific		Water	
WCTPW003A-10-E4 (580-66234-5)		2/21/17		18:50 Pacific		Water	
WCTPW003B-10-E4 (580-66234-6)		2/21/17		19:40 Pacific		Water	
WCTPW5MB-E4 (580-66234-8)		2/21/17		20:40 Pacific		Water	
MW011-E4 (580-66234-9)		2/21/17		14:15 Pacific		Water	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify) \_\_\_\_\_ Primary Deliverable Rank: 2

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_

Relinquished by: *Matthew McDevitt* Date/Time: 2/24/17 14:56 Company: JTA-Sea

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

Custody Seals Intact:  Yes  No Custody Seal No.: \_\_\_\_\_

Special Instructions/OC Requirements: \_\_\_\_\_

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-66234-1

**Login Number: 66234**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Ponce-McDermott, Monica**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	No name
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	False	Did not receive all required containers.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-66234-1

**Login Number: 66234**  
**List Number: 2**  
**Creator: White, Denise E**

**List Source: TestAmerica Denver**  
**List Creation: 02/25/17 01:02 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

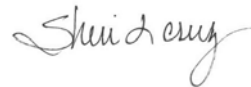
TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-66234-2  
Client Project/Site: Parcel 15 - POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Erin Carroll Hughes



Authorized for release by:  
3/2/2017 1:05:16 PM

Sheri Cruz, Project Manager I  
(253)922-2310  
[sheri.cruz@testamericainc.com](mailto:sheri.cruz@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

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**Job ID: 580-66234-2**

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**Laboratory: TestAmerica Seattle**

## Narrative

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**Job Narrative**  
**580-66234-2**

## Comments

No additional comments.

## Receipt

The samples were received on 2/22/2017 10:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 2.8° C.

## Receipt Exceptions

A container (1L unpreserved) for TSS analysis was not received for Sample WCTPW5MB-E4: WCTPW5MB-E4 (580-66234-8)

## Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

**Client Sample ID: WCTPW001A-10-E4**

**Lab Sample ID: 580-66234-1**

**Date Collected: 02/21/17 16:50**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100		1.1	0.023	mg/L		02/27/17 14:17	02/28/17 23:40	1
Magnesium	320		1.1	0.13	mg/L		02/27/17 14:17	02/28/17 23:40	1
Potassium	100		3.3	0.15	mg/L		02/27/17 14:17	02/28/17 23:40	1
Sodium	2900		200	55	mg/L		02/27/17 14:17	03/01/17 16:25	100



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

**Client Sample ID: WCTPW001B-10-E4**

**Lab Sample ID: 580-66234-2**

**Date Collected: 02/21/17 17:05**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	56		1.1	0.023	mg/L		02/27/17 14:17	02/28/17 23:43	1
Magnesium	160		1.1	0.13	mg/L		02/27/17 14:17	02/28/17 23:43	1
Potassium	64		3.3	0.15	mg/L		02/27/17 14:17	02/28/17 23:43	1
Sodium	1500		200	55	mg/L		02/27/17 14:17	03/01/17 16:28	100

**Method: 6020A - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	19		5.0	1.4	ug/L		02/27/17 14:17	02/28/17 21:25	5
Iron	6500		200	29	ug/L		02/27/17 14:17	02/28/17 21:25	5
Manganese	610		10	1.8	ug/L		02/27/17 14:17	02/28/17 21:25	5

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

**Client Sample ID: WCTPW002A-10-E4**

**Lab Sample ID: 580-66234-3**

**Date Collected: 02/21/17 17:50**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	180		1.1	0.023	mg/L		02/27/17 14:17	02/28/17 23:47	1
Magnesium	570		1.1	0.13	mg/L		02/27/17 14:17	02/28/17 23:47	1
Potassium	190		3.3	0.15	mg/L		02/27/17 14:17	02/28/17 23:47	1
Sodium	5300		200	55	mg/L		02/27/17 14:17	03/01/17 16:32	100

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

**Client Sample ID: WCTPW002B-10-E4**

**Lab Sample ID: 580-66234-4**

**Date Collected: 02/21/17 18:20**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	140		1.1	0.023	mg/L		02/27/17 14:17	02/28/17 23:50	1
Magnesium	410		1.1	0.13	mg/L		02/27/17 14:17	02/28/17 23:50	1
Potassium	110		3.3	0.15	mg/L		02/27/17 14:17	02/28/17 23:50	1
Sodium	3200		200	55	mg/L		02/27/17 14:17	03/01/17 16:35	100

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

**Client Sample ID: WCTPW003A-10-E4**

**Lab Sample ID: 580-66234-5**

**Date Collected: 02/21/17 18:50**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110		1.1	0.023	mg/L		02/27/17 14:18	02/28/17 23:54	1
Magnesium	300		1.1	0.13	mg/L		02/27/17 14:18	02/28/17 23:54	1
Potassium	110		3.3	0.15	mg/L		02/27/17 14:18	02/28/17 23:54	1
Sodium	2900		200	55	mg/L		02/27/17 14:18	03/01/17 16:39	100

# Client Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

**Client Sample ID: WCTPW003B-10-E4**

**Lab Sample ID: 580-66234-6**

**Date Collected: 02/21/17 19:40**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	53		1.1	0.023	mg/L		02/27/17 14:18	02/28/17 23:57	1
Magnesium	100		1.1	0.13	mg/L		02/27/17 14:18	02/28/17 23:57	1
Potassium	48		3.3	0.15	mg/L		02/27/17 14:18	02/28/17 23:57	1
Sodium	1000		200	55	mg/L		02/27/17 14:18	03/01/17 16:42	100

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-239365/22-A**  
**Matrix: Water**  
**Analysis Batch: 239525**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239365**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		02/27/17 14:18	02/28/17 23:02	1
Magnesium	ND		1.1	0.13	mg/L		02/27/17 14:18	02/28/17 23:02	1
Potassium	ND		3.3	0.15	mg/L		02/27/17 14:18	02/28/17 23:02	1
Sodium	ND		2.0	0.55	mg/L		02/27/17 14:18	02/28/17 23:02	1

**Lab Sample ID: LCS 580-239365/23-A**  
**Matrix: Water**  
**Analysis Batch: 239525**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239365**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	21.9		mg/L		109	80 - 120
Magnesium	20.0	21.4		mg/L		107	80 - 120
Potassium	20.0	19.6		mg/L		98	80 - 120
Sodium	20.0	23.1		mg/L		116	80 - 120

**Lab Sample ID: LCSD 580-239365/24-A**  
**Matrix: Water**  
**Analysis Batch: 239525**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239365**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	20.0	21.3		mg/L		106	80 - 120	3	20
Magnesium	20.0	21.0		mg/L		105	80 - 120	2	20
Potassium	20.0	19.1		mg/L		95	80 - 120	2	20
Sodium	20.0	21.8		mg/L		109	80 - 120	6	20

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 580-239365/22-A**  
**Matrix: Water**  
**Analysis Batch: 239494**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239365**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	1.4	ug/L		02/27/17 14:18	02/28/17 21:12	5
Iron	ND		200	29	ug/L		02/27/17 14:18	02/28/17 21:12	5
Manganese	ND		10	1.8	ug/L		02/27/17 14:18	02/28/17 21:12	5

**Lab Sample ID: LCS 580-239365/23-A**  
**Matrix: Water**  
**Analysis Batch: 239494**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 239365**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4000	4310		ug/L		108	80 - 120
Iron	22000	23300		ug/L		106	80 - 120
Manganese	1000	1040		ug/L		104	80 - 120

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

## Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-239365/24-A  
Matrix: Water  
Analysis Batch: 239494

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total Recoverable  
Prep Batch: 239365

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	4000	4320		ug/L		108	80 - 120	0	20
Iron	22000	23400		ug/L		106	80 - 120	0	20
Manganese	1000	1040		ug/L		104	80 - 120	0	20

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

**Client Sample ID: WCTPW001A-10-E4**

**Lab Sample ID: 580-66234-1**

**Date Collected: 02/21/17 16:50**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239365	02/27/17 14:17	PAB	TAL SEA
Dissolved	Analysis	6010C		1	239525	02/28/17 23:40	SPP	TAL SEA
Dissolved	Prep	3005A			239365	02/27/17 14:17	PAB	TAL SEA
Dissolved	Analysis	6010C		100	239559	03/01/17 16:25	SPP	TAL SEA

**Client Sample ID: WCTPW001B-10-E4**

**Lab Sample ID: 580-66234-2**

**Date Collected: 02/21/17 17:05**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239365	02/27/17 14:17	PAB	TAL SEA
Dissolved	Analysis	6010C		1	239525	02/28/17 23:43	SPP	TAL SEA
Dissolved	Prep	3005A			239365	02/27/17 14:17	PAB	TAL SEA
Dissolved	Analysis	6010C		100	239559	03/01/17 16:28	SPP	TAL SEA
Dissolved	Prep	3005A			239365	02/27/17 14:17	PAB	TAL SEA
Dissolved	Analysis	6020A		5	239494	02/28/17 21:25	FCW	TAL SEA

**Client Sample ID: WCTPW002A-10-E4**

**Lab Sample ID: 580-66234-3**

**Date Collected: 02/21/17 17:50**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239365	02/27/17 14:17	PAB	TAL SEA
Dissolved	Analysis	6010C		1	239525	02/28/17 23:47	SPP	TAL SEA
Dissolved	Prep	3005A			239365	02/27/17 14:17	PAB	TAL SEA
Dissolved	Analysis	6010C		100	239559	03/01/17 16:32	SPP	TAL SEA

**Client Sample ID: WCTPW002B-10-E4**

**Lab Sample ID: 580-66234-4**

**Date Collected: 02/21/17 18:20**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239365	02/27/17 14:17	PAB	TAL SEA
Dissolved	Analysis	6010C		1	239525	02/28/17 23:50	SPP	TAL SEA
Dissolved	Prep	3005A			239365	02/27/17 14:17	PAB	TAL SEA
Dissolved	Analysis	6010C		100	239559	03/01/17 16:35	SPP	TAL SEA

**Client Sample ID: WCTPW003A-10-E4**

**Lab Sample ID: 580-66234-5**

**Date Collected: 02/21/17 18:50**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239365	02/27/17 14:18	PAB	TAL SEA

TestAmerica Seattle



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

**Client Sample ID: WCTPW003A-10-E4**

**Lab Sample ID: 580-66234-5**

**Date Collected: 02/21/17 18:50**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6010C		1	239525	02/28/17 23:54	SPP	TAL SEA
Dissolved	Prep	3005A			239365	02/27/17 14:18	PAB	TAL SEA
Dissolved	Analysis	6010C		100	239559	03/01/17 16:39	SPP	TAL SEA

**Client Sample ID: WCTPW003B-10-E4**

**Lab Sample ID: 580-66234-6**

**Date Collected: 02/21/17 19:40**

**Matrix: Water**

**Date Received: 02/22/17 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239365	02/27/17 14:18	PAB	TAL SEA
Dissolved	Analysis	6010C		1	239525	02/28/17 23:57	SPP	TAL SEA
Dissolved	Prep	3005A			239365	02/27/17 14:18	PAB	TAL SEA
Dissolved	Analysis	6010C		100	239559	03/01/17 16:42	SPP	TAL SEA

## Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-18

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6020A	3005A	Water	Iron

- 1
- 2
- 3
- 4
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- 8
- 9
- 10
- 11

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 - POT

TestAmerica Job ID: 580-66234-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-66234-1	WCTPW001A-10-E4	Water	02/21/17 16:50	02/22/17 10:40
580-66234-2	WCTPW001B-10-E4	Water	02/21/17 17:05	02/22/17 10:40
580-66234-3	WCTPW002A-10-E4	Water	02/21/17 17:50	02/22/17 10:40
580-66234-4	WCTPW002B-10-E4	Water	02/21/17 18:20	02/22/17 10:40
580-66234-5	WCTPW003A-10-E4	Water	02/21/17 18:50	02/22/17 10:40
580-66234-6	WCTPW003B-10-E4	Water	02/21/17 19:40	02/22/17 10:40



Loc: 580  
66234

55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

Field Sampler(s):

### Chain of Custody Record

<b>Client Contact</b>	<b>For Lab Use Only:</b>	<b>Laboratory</b>		<b>Lab PM</b>
<b>Project Name: Parcel 15 - POT</b>	SDG: _____	<b>TestAmerica</b>		Brooks Ben Wozniak 206-753-6158
<b>Project # or PO #: 603.002.014</b>	Custody Seals intact?	<b>Brooks</b>		
<b>Project Manager: Erin Hughes</b>	Hand delivered?	<b>Analysis Requested</b>		
<b>Phone #: 971-200-8528</b>	Cooler Temp: _____ °C	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)
<b>Report to email: echughes@gslws.com</b>	Therm ID No.: _____ Therm Exp. _____	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**
		300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)
			6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)
			8260D SIM: Pentachlorophenol	1638M: Arsenic (total)
				1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***
				Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)

**Analysis Turnaround Time:**  
Standard 21 day TAT on Most Analyses  
Rush 5 day on Dissolved Metals in Porewater

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.	SM5310B: Total Organic Carbon	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
WCTP001A-10-E4	2/21	1650	1503	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	R=Rush
WCTP001B-10-E4	2/21	1705	11,200	G	PW	13	X	X	X	X	X	X	X	X	X	X	X		X	R	*	*=if
WCTP002A-10-E4	2/21	1750	14976	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	diss As
WCTP002B-10-E4	2/21	1820	16082	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	736 ug/L
WCTP003A-10-E4	2/21	1850	7858	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	
WCTP003B-10-E4	2/21	1940	3435	G	PW	12	X	X	X	X	X	X	X	X	X				X	R	*	
WCTP004A-10-E4	2/21	2005	596	G	PW	9	X	X		X								X	X	R	*	
WCTP005B-E4	2/21	2040	0	G	MB	7	X	X	X	X								X	X	X		
MW011-E4	2/21	1715	1457	G	GW	6	X	X	X	X									X	X		



**Possible Hazard Identification:** 580-66234 Chain of Custody

Are samples hazardous?  No

If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic

Sample Disposal: (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)

Return to Client  Disposal by Lab  Archive frozen for 1 year

Relinquished by: Kevin Fowler Date/Time: 2/22/17 1040

Received by: B. Hall B. Call SRATM Date/Time: 2.22.17 1040

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Shipped Via:  UPS  Fed-Ex  USPS  Other Tracking #: \_\_\_\_\_

Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Special Instructions/QC Requirements**

\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
Please contact Cindy Ryals at 971-200-8531 with any questions.

TBZ Cooler Cor 0.8 Unc 1.7 TB Cooler IRY Cor 2.8 Unc 3.4  
Cooler Dsc 1rs BW @Lab Cooler Dsc 1rs BW @Lab  
Wet/Pack Packing Bubble Wet/Pack Packing Bubble  
Objects of 19 W10 CK do W10

## Cruz, Sheri

---

**From:** Renee Fowler <rfowler@gsiws.com>  
**Sent:** Wednesday, February 22, 2017 12:10 PM  
**To:** Cruz, Sheri; 'Ben Wozniak'  
**Cc:** Erin Carroll Hughes  
**Subject:** Parcel 15: Mw-11 conductivity

Ben and Sheri,

*MW011-E4 Sample time of 1415*  
The Port of Tacoma sample for MW11 was dropped off at TA today. The field conductivity was accidentally left off the COC but was  $1457 \mu\text{S}/\text{cm}$

Thanks,  
Renee

Sent from my Verizon Wireless 4G LTE smartphone

# Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-66234-2

**Login Number: 66234**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Ponce-McDermott, Monica**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	No name
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	False	Did not receive all required containers.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

TestAmerica Job ID: 580-66278-1  
Client Project/Site: Parcel 15 RI - POT

For:  
GSI Water Solutions, Inc  
55 SW Yamhill Street  
Suite 300  
Portland, Oregon 97204

Attn: Erin Carroll Hughes



Authorized for release by:  
3/24/2017 10:57:20 AM  
Kristine Allen, Manager of Project Management  
(253)248-4970  
[kristine.allen@testamericainc.com](mailto:kristine.allen@testamericainc.com)

Designee for  
Sheri Cruz, Project Manager I  
(253)922-2310  
[sheri.cruz@testamericainc.com](mailto:sheri.cruz@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Job ID: 580-66278-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### Job Narrative 580-66278-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 2/23/2017 2:28 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.3° C, 1.7° C, 3.3° C, 3.7° C and 4.8° C.

#### Receipt Exceptions

The reference method requires samples to have a pH of greater than 12. The following sample was received with a pH of less than 12 : The sample was adjusted to the appropriate pH in the laboratory. Sample ID: MW009-E4 Added Zinc Acetate(Lot#G05146) & NaOh(Lot#0000021972)

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): MW003R-E4 (580-66278-3). The container labels list MW003-E4, while the COC lists MW003R-E4. Logged in per COC sample Id.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): B006R-E4 (580-66278-13). The container labels list BR006-E4, while the COC lists B006R-E4. Logged in per COC.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

Method(s) 6020A: Iron was detected in the method blank MB 580-239974/20-A greater than the reporting limit but less than the detection limit. The data has been qualified and reported.

No additional analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 365.1: Initial ICV, CCV all passed. The closing CCV failed. Samples were re-run two additional times and the same results, closing CCV failed. Matrix interference is suspected. A closing CCV after a sample pause, passed. The sample QC, MS/MSD also passed.

Method(s): SM 5310B: Total Organic Carbon was detected in the method blank MB 580-23987/3 greater than the reporting limit but less than the detection limit. The data has been qualified and reported.

Method(s): SM 5310B: Dissolved Organic Carbon was detected in the method blanks MB 580-239883//3 and MB 580-240559/3 greater than the reporting limit but less than the detection limit. The data has been qualified and reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Subcontract Work

Methods Major Ions (Br,Cl,F,SO4), field-filtered, Major Ions (NO3, NO2), field filtered: These methods were subcontracted to Analytical Resources, Inc. The subcontract laboratory certifications are different from that of the facility issuing the final report.

# Definitions/Glossary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: B005R-E4**

**Lab Sample ID: 580-66278-1**

**Date Collected: 02/22/17 11:55**

**Matrix: Water**

**Date Received: 02/23/17 14:28**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.43		0.084	0.084	ug/L		03/01/17 14:24	03/02/17 12:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	70		44 - 125				03/01/17 14:24	03/02/17 12:38	1

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	1.4	ug/L		03/08/17 10:50	03/09/17 09:35	5

**Method: 6020A - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	1.4	ug/L		03/08/17 10:50	03/09/17 09:40	5
Iron	27000	B	200	29	ug/L		03/08/17 10:50	03/09/17 09:40	5
Manganese	880		10	1.8	ug/L		03/08/17 10:50	03/09/17 09:40	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	17	B	4.0	0.76	mg/L			03/06/17 17:21	4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	3.2		2.0	2.0	mg/L			02/25/17 16:19	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:11	1
Dissolved Organic Carbon	17	B	4.0	0.76	mg/L			03/07/17 00:21	4

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: B505R-E4**

**Lab Sample ID: 580-66278-2**

**Date Collected: 02/22/17 11:30**

**Matrix: Water**

**Date Received: 02/23/17 14:28**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.090	0.090	ug/L		03/01/17 14:24	03/02/17 13:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	71		44 - 125				03/01/17 14:24	03/02/17 13:00	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>16</b>	<b>B</b>	4.0	0.76	mg/L			03/06/17 17:21	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>2.8</b>		2.0	2.0	mg/L			02/25/17 16:19	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:11	1
<b>Dissolved Organic Carbon</b>	<b>16</b>	<b>B</b>	4.0	0.76	mg/L			03/07/17 00:21	4

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: MW003R-E4**

**Lab Sample ID: 580-66278-3**

**Date Collected: 02/22/17 14:00**

**Matrix: Water**

**Date Received: 02/23/17 14:28**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.084		0.083	0.083	ug/L		03/01/17 14:24	03/02/17 13:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	74		44 - 125				03/01/17 14:24	03/02/17 13:22	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	37	B	4.0	0.76	mg/L			03/06/17 17:21	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	110		2.0	2.0	mg/L			02/25/17 16:19	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	41	B	4.0	0.76	mg/L			03/07/17 00:21	4

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: MW005R-E4**

**Lab Sample ID: 580-66278-4**

**Date Collected: 02/22/17 15:00**

**Matrix: Water**

**Date Received: 02/23/17 14:28**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.91		0.086	0.086	ug/L		03/01/17 14:24	03/02/17 13:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	78		44 - 125				03/01/17 14:24	03/02/17 13:44	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	19	B	4.0	0.76	mg/L			03/06/17 17:21	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			02/25/17 16:19	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	18	B	4.0	0.76	mg/L			03/07/17 00:21	4

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: MW006R-E4**

**Lab Sample ID: 580-66278-5**

**Date Collected: 02/22/17 16:05**

**Matrix: Water**

**Date Received: 02/23/17 14:28**

**Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.73		0.086	0.086	ug/L		03/01/17 14:24	03/02/17 14:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	75		44 - 125				03/01/17 14:24	03/02/17 14:06	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	24	B	4.0	0.76	mg/L			03/06/17 17:21	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	4.6		2.0	2.0	mg/L			02/25/17 16:19	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	21	B	4.0	0.76	mg/L			03/07/17 00:21	4

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: MW010-E4**

**Lab Sample ID: 580-66278-6**

Date Collected: 02/22/17 15:45

Matrix: Water

Date Received: 02/23/17 14:28

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100		1.1	0.023	mg/L		03/08/17 10:50	03/09/17 12:20	1
Magnesium	36		1.1	0.13	mg/L		03/08/17 10:50	03/09/17 12:20	1
Potassium	32		3.3	0.15	mg/L		03/08/17 10:50	03/09/17 12:20	1
Sodium	73		2.0	0.55	mg/L		03/08/17 10:50	03/09/17 12:20	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	61	B	4.0	0.76	mg/L			03/06/17 17:21	4
Total Suspended Solids	170		8.0	8.0	mg/L			02/25/17 16:19	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:11	1
Dissolved Organic Carbon	53	B	4.0	0.76	mg/L			03/07/17 00:21	4
ortho-Phosphate	0.64		0.10	0.10	mg/L			02/24/17 10:55	1
Alkalinity	520		5.0	5.0	mg/L			03/06/17 08:38	1
Bicarbonate Alkalinity as CaCO3	520		5.0	5.0	mg/L			03/06/17 08:38	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1



# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: MW013-E4**

**Lab Sample ID: 580-66278-7**

Date Collected: 02/22/17 14:45

Matrix: Water

Date Received: 02/23/17 14:28

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	72		1.1	0.023	mg/L		03/08/17 10:50	03/09/17 12:23	1
Magnesium	17		1.1	0.13	mg/L		03/08/17 10:50	03/09/17 12:23	1
Potassium	10		3.3	0.15	mg/L		03/08/17 10:50	03/09/17 12:23	1
Sodium	44		2.0	0.55	mg/L		03/08/17 10:50	03/09/17 12:23	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	23	B	4.0	0.76	mg/L			03/06/17 17:21	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	97		4.0	4.0	mg/L			02/28/17 10:01	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:11	1
Dissolved Organic Carbon	22	B	4.0	0.76	mg/L			03/14/17 23:14	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.27		0.10	0.10	mg/L			02/24/17 10:55	1
Alkalinity	320		5.0	5.0	mg/L			03/06/17 08:38	1
Bicarbonate Alkalinity as CaCO3	320		5.0	5.0	mg/L			03/06/17 08:38	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: MW007-E4**

**Lab Sample ID: 580-66278-8**

Date Collected: 02/22/17 17:00

Matrix: Water

Date Received: 02/23/17 14:28

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	18		1.1	0.023	mg/L		03/08/17 10:50	03/09/17 12:27	1
Magnesium	8.6		1.1	0.13	mg/L		03/08/17 10:50	03/09/17 12:27	1
Potassium	15		3.3	0.15	mg/L		03/08/17 10:50	03/09/17 12:27	1
Sodium	7.1		2.0	0.55	mg/L		03/08/17 10:50	03/09/17 12:27	1

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.4	J	5.0	1.4	ug/L		03/08/17 10:50	03/09/17 09:31	5

**Method: 6020A - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.6	J	5.0	1.4	ug/L		03/08/17 10:50	03/09/17 09:26	5
Iron	2100	B	200	29	ug/L		03/08/17 10:50	03/09/17 09:26	5
Manganese	820		10	1.8	ug/L		03/08/17 10:50	03/09/17 09:26	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	6.1		1.0	0.19	mg/L			03/14/17 16:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	5.2		2.0	2.0	mg/L			02/28/17 10:01	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:11	1
Dissolved Organic Carbon	5.1	B	1.0	0.19	mg/L			03/14/17 23:14	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.11		0.10	0.10	mg/L			02/24/17 10:55	1
Alkalinity	70		5.0	5.0	mg/L			03/06/17 08:38	1
Bicarbonate Alkalinity as CaCO3	70		5.0	5.0	mg/L			03/06/17 08:38	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: MW507-E4**

**Lab Sample ID: 580-66278-9**

Date Collected: 02/22/17 17:15

Matrix: Water

Date Received: 02/23/17 14:28

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	18		1.1	0.023	mg/L		03/08/17 10:50	03/09/17 12:30	1
Magnesium	9.0		1.1	0.13	mg/L		03/08/17 10:50	03/09/17 12:30	1
Potassium	16		3.3	0.15	mg/L		03/08/17 10:50	03/09/17 12:30	1
Sodium	7.5		2.0	0.55	mg/L		03/08/17 10:50	03/09/17 12:30	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	7.6		1.0	0.19	mg/L			03/14/17 16:05	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	3.8		2.0	2.0	mg/L			02/28/17 10:01	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:11	1
Dissolved Organic Carbon	5.4	B	1.0	0.19	mg/L			03/14/17 23:14	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.12		0.10	0.10	mg/L			02/24/17 10:55	1
Alkalinity	70		5.0	5.0	mg/L			03/06/17 08:38	1
Bicarbonate Alkalinity as CaCO3	70		5.0	5.0	mg/L			03/06/17 08:38	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: MW008-E4**

**Lab Sample ID: 580-66278-10**

**Date Collected: 02/23/17 11:50**

**Matrix: Water**

**Date Received: 02/23/17 14:28**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>61</b>		4.0	0.76	mg/L			03/14/17 16:05	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>130</b>		2.0	2.0	mg/L			02/28/17 10:01	1

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:13	1
<b>Dissolved Organic Carbon</b>	<b>55</b>	<b>B</b>	4.0	0.76	mg/L			03/14/17 23:14	4

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: MW012-E4**

**Lab Sample ID: 580-66278-11**

Date Collected: 02/23/17 11:25

Matrix: Water

Date Received: 02/23/17 14:28

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	84		1.1	0.023	mg/L		03/08/17 10:50	03/09/17 12:33	1
Magnesium	40		1.1	0.13	mg/L		03/08/17 10:50	03/09/17 12:33	1
Potassium	32		3.3	0.15	mg/L		03/08/17 10:50	03/09/17 12:33	1
Sodium	72		2.0	0.55	mg/L		03/08/17 10:50	03/09/17 12:33	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	47		4.0	0.76	mg/L			03/14/17 16:05	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	190		2.0	2.0	mg/L			02/28/17 10:01	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:13	1
Dissolved Organic Carbon	52	B	4.0	0.76	mg/L			03/14/17 23:14	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.12		0.10	0.10	mg/L			02/24/17 10:55	1
Alkalinity	490		5.0	5.0	mg/L			03/06/17 08:38	1
Bicarbonate Alkalinity as CaCO3	490		5.0	5.0	mg/L			03/06/17 08:38	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/06/17 08:38	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: MW009-E4**

**Lab Sample ID: 580-66278-12**

Date Collected: 02/23/17 12:45

Matrix: Water

Date Received: 02/23/17 14:28

**Method: 6010C - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	44		1.1	0.023	mg/L		03/08/17 10:50	03/09/17 12:36	1
Magnesium	25		1.1	0.13	mg/L		03/08/17 10:50	03/09/17 12:36	1
Potassium	18		3.3	0.15	mg/L		03/08/17 10:50	03/09/17 12:36	1
Sodium	32		2.0	0.55	mg/L		03/08/17 10:50	03/09/17 12:36	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	45		4.0	0.76	mg/L			03/15/17 11:02	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	170		2.0	2.0	mg/L			02/28/17 10:01	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:13	1
Dissolved Organic Carbon	42	B	4.0	0.76	mg/L			03/15/17 11:14	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	0.13		0.10	0.10	mg/L			02/24/17 10:55	1
Alkalinity	430		5.0	5.0	mg/L			03/07/17 08:40	1
Bicarbonate Alkalinity as CaCO3	430		5.0	5.0	mg/L			03/07/17 08:40	1
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/07/17 08:40	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			03/07/17 08:40	1

# Client Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: B006R-E4**

**Lab Sample ID: 580-66278-13**

**Date Collected: 02/23/17 12:45**

**Matrix: Water**

**Date Received: 02/23/17 14:28**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>93</b>		8.0	1.5	mg/L			03/15/17 11:02	8
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids</b>	<b>18</b>		2.0	2.0	mg/L			02/28/17 10:01	1

**General Chemistry - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:13	1
<b>Dissolved Organic Carbon</b>	<b>92 B</b>		8.0	1.5	mg/L			03/15/17 11:14	8



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-239532/1-A**

**Matrix: Water**

**Analysis Batch: 239596**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 239532**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.080	0.080	ug/L		03/01/17 14:24	03/02/17 12:16	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	73		44 - 125				03/01/17 14:24	03/02/17 12:16	1

**Lab Sample ID: LCS 580-239532/2-A**

**Matrix: Water**

**Analysis Batch: 239596**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 239532**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	4.00	3.18		ug/L		80	30 - 149
Surrogate	%Recovery	LCS Qualifier	Limits				
2,4,6-Tribromophenol	68		44 - 125				

**Lab Sample ID: LCSD 580-239532/3-A**

**Matrix: Water**

**Analysis Batch: 239596**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 239532**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	4.00	3.77		ug/L		94	30 - 149	17	20
Surrogate	%Recovery	LCSD Qualifier	Limits						
2,4,6-Tribromophenol	70		44 - 125						

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 580-239974/20-A**

**Matrix: Water**

**Analysis Batch: 240137**

**Client Sample ID: Method Blank**

**Prep Type: Total Recoverable**

**Prep Batch: 239974**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.023	mg/L		03/08/17 10:50	03/09/17 11:45	1
Magnesium	ND		1.1	0.13	mg/L		03/08/17 10:50	03/09/17 11:45	1
Potassium	ND		3.3	0.15	mg/L		03/08/17 10:50	03/09/17 11:45	1
Sodium	ND		2.0	0.55	mg/L		03/08/17 10:50	03/09/17 11:45	1

**Lab Sample ID: LCS 580-239974/21-A**

**Matrix: Water**

**Analysis Batch: 240137**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total Recoverable**

**Prep Batch: 239974**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Calcium	20.0	20.6		mg/L		103	80 - 120
Magnesium	20.0	21.2		mg/L		106	80 - 120
Potassium	20.0	19.0		mg/L		95	80 - 120
Sodium	20.0	19.1		mg/L		95	80 - 120

TestAmerica Seattle



# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

## Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 580-239974/22-A  
Matrix: Water  
Analysis Batch: 240137

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total Recoverable  
Prep Batch: 239974

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Calcium	20.0	21.4		mg/L		107	80 - 120	4	20	
Magnesium	20.0	22.0		mg/L		110	80 - 120	4	20	
Potassium	20.0	19.8		mg/L		99	80 - 120	4	20	
Sodium	20.0	19.7		mg/L		98	80 - 120	3	20	

## Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-239974/20-A  
Matrix: Water  
Analysis Batch: 240115

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 239974

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		1.0	0.27	ug/L		03/08/17 10:50	03/09/17 08:00	1
Iron	5.96	J	40	5.8	ug/L		03/08/17 10:50	03/09/17 08:00	1
Manganese	ND		2.0	0.35	ug/L		03/08/17 10:50	03/09/17 08:00	1

Lab Sample ID: LCS 580-239974/21-A  
Matrix: Water  
Analysis Batch: 240115

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 239974

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	RPD
Arsenic	4000	4120		ug/L		103	80 - 120	
Iron	22000	23200		ug/L		105	80 - 120	
Manganese	1000	1010		ug/L		101	80 - 120	

Lab Sample ID: LCSD 580-239974/22-A  
Matrix: Water  
Analysis Batch: 240115

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total Recoverable  
Prep Batch: 239974

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Arsenic	4000	4140		ug/L		104	80 - 120	1	20	
Iron	22000	23100		ug/L		105	80 - 120	0	20	
Manganese	1000	1010		ug/L		101	80 - 120	0	20	

## Method: 365.1 - Phosphorus, Ortho

Lab Sample ID: MB 580-239272/1  
Matrix: Water  
Analysis Batch: 239272

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB MB		RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
ortho-Phosphate	ND		0.10	0.10	mg/L			02/24/17 10:55	1

Lab Sample ID: LCS 580-239272/2  
Matrix: Water  
Analysis Batch: 239272

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	RPD
ortho-Phosphate	2.00	2.10		mg/L		105	90 - 110	

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Lab Sample ID: 580-66278-6 MS**  
**Matrix: Water**  
**Analysis Batch: 239272**

**Client Sample ID: MW010-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
ortho-Phosphate	0.64		2.00	2.56		mg/L		96	80 - 120

**Lab Sample ID: 580-66278-6 MSD**  
**Matrix: Water**  
**Analysis Batch: 239272**

**Client Sample ID: MW010-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ortho-Phosphate	0.64		2.00	2.50		mg/L		93	80 - 120	2	20

**Lab Sample ID: 580-66278-6 DU**  
**Matrix: Water**  
**Analysis Batch: 239272**

**Client Sample ID: MW010-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
ortho-Phosphate	0.64		0.613		mg/L		4	20

## Method: SM 2320B - Alkalinity

**Lab Sample ID: LCS 580-239854/2**  
**Matrix: Water**  
**Analysis Batch: 239854**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	103		mg/L		103	85 - 115

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 580-239304/1**  
**Matrix: Water**  
**Analysis Batch: 239304**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			02/25/17 16:19	1

**Lab Sample ID: LCS 580-239304/2**  
**Matrix: Water**  
**Analysis Batch: 239304**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	26.0		mg/L		94	70.6 - 120

**Lab Sample ID: MB 580-239411/1**  
**Matrix: Water**  
**Analysis Batch: 239411**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			02/28/17 10:01	1

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

## Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

**Lab Sample ID: LCS 580-239411/2**

**Matrix: Water**

**Analysis Batch: 239411**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	26.0		mg/L		94	70.6 - 120

**Lab Sample ID: 580-66278-7 DU**

**Matrix: Water**

**Analysis Batch: 239411**

**Client Sample ID: MW013-E4**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	97		93.2		mg/L		4	20

**Lab Sample ID: 580-66278-8 DU**

**Matrix: Water**

**Analysis Batch: 239411**

**Client Sample ID: MW007-E4**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	5.2		5.40		mg/L		4	20

## Method: SM 4500 S2 D - Sulfide, Total

**Lab Sample ID: MB 280-363620/3**

**Matrix: Water**

**Analysis Batch: 363620**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			02/27/17 20:11	1

**Lab Sample ID: LCS 280-363620/4**

**Matrix: Water**

**Analysis Batch: 363620**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.460	0.413		mg/L		90	80 - 119

**Lab Sample ID: LCSD 280-363620/5**

**Matrix: Water**

**Analysis Batch: 363620**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.460	0.416		mg/L		90	80 - 119	1	10

**Lab Sample ID: 580-66278-1 MS**

**Matrix: Water**

**Analysis Batch: 363620**

**Client Sample ID: B005R-E4**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND		0.460	0.437		mg/L		95	80 - 119

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

## Method: SM 4500 S2 D - Sulfide, Total (Continued)

Lab Sample ID: 580-66278-1 MSD

Matrix: Water

Analysis Batch: 363620

Client Sample ID: B005R-E4

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND		0.460	0.437		mg/L		95	80 - 119	0	10

## Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-239878/3

Matrix: Water

Analysis Batch: 239878

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.201	J	1.0	0.19	mg/L			03/06/17 17:21	1

Lab Sample ID: LCS 580-239878/4

Matrix: Water

Analysis Batch: 239878

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	10.0		mg/L		100	85 - 115

Lab Sample ID: MB 580-240558/3

Matrix: Water

Analysis Batch: 240558

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			03/14/17 16:05	1

Lab Sample ID: LCS 580-240558/4

Matrix: Water

Analysis Batch: 240558

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	10.0		mg/L		100	85 - 115

Lab Sample ID: 580-66278-8 MS

Matrix: Water

Analysis Batch: 240558

Client Sample ID: MW007-E4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.1		10.0	17.0		mg/L		109	85 - 115

Lab Sample ID: 580-66278-8 MSD

Matrix: Water

Analysis Batch: 240558

Client Sample ID: MW007-E4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	6.1		10.0	17.2		mg/L		111	85 - 115	1	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

## Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: 580-66278-8 DU**  
**Matrix: Water**  
**Analysis Batch: 240558**

**Client Sample ID: MW007-E4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Organic Carbon	6.1		6.65		mg/L		9	20

## Method: SM 5310B - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 580-239883/3**  
**Matrix: Water**  
**Analysis Batch: 239883**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	0.256	J	1.0	0.19	mg/L			03/07/17 00:21	1

**Lab Sample ID: LCS 580-239883/4**  
**Matrix: Water**  
**Analysis Batch: 239883**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.44		mg/L		94	85 - 115

**Lab Sample ID: MB 580-240559/3**  
**Matrix: Water**  
**Analysis Batch: 240559**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	0.243	J	1.0	0.19	mg/L			03/14/17 23:14	1

**Lab Sample ID: LCS 580-240559/4**  
**Matrix: Water**  
**Analysis Batch: 240559**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.1		mg/L		101	85 - 115

**Lab Sample ID: 580-66278-8 MS**  
**Matrix: Water**  
**Analysis Batch: 240559**

**Client Sample ID: MW007-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	5.1	B	10.0	15.1		mg/L		100	85 - 115

**Lab Sample ID: 580-66278-8 MSD**  
**Matrix: Water**  
**Analysis Batch: 240559**

**Client Sample ID: MW007-E4**  
**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Dissolved Organic Carbon	5.1	B	10.0	15.2		mg/L		101	85 - 115	1	20

TestAmerica Seattle

# QC Sample Results

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

## Method: SM 5310B - Organic Carbon, Dissolved (DOC) (Continued)

Lab Sample ID: 580-66278-8 DU  
 Matrix: Water  
 Analysis Batch: 240559

Client Sample ID: MW007-E4  
 Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Dissolved Organic Carbon	5.1	B	5.15		mg/L		0	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

## Client Sample ID: B005R-E4

Date Collected: 02/22/17 11:55

Date Received: 02/23/17 14:28

## Lab Sample ID: 580-66278-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			239532	03/01/17 14:24	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		1	239596	03/02/17 12:38	CJ	TAL SEA
Dissolved	Prep	3005A			239974	03/08/17 10:50	ADB	TAL SEA
Dissolved	Analysis	6020A		5	240115	03/09/17 09:40	FCW	TAL SEA
Total Recoverable	Prep	3005A			239974	03/08/17 10:50	ADB	TAL SEA
Total Recoverable	Analysis	6020A		5	240115	03/09/17 09:35	FCW	TAL SEA
Total/NA	Analysis	SM 2540D		1	239304	02/25/17 16:19	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363620	02/27/17 20:11	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		4	239883	03/07/17 00:21	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	239878	03/06/17 17:21	Z1T	TAL SEA

## Client Sample ID: B505R-E4

Date Collected: 02/22/17 11:30

Date Received: 02/23/17 14:28

## Lab Sample ID: 580-66278-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			239532	03/01/17 14:24	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		1	239596	03/02/17 13:00	CJ	TAL SEA
Total/NA	Analysis	SM 2540D		1	239304	02/25/17 16:19	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363620	02/27/17 20:11	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		4	239883	03/07/17 00:21	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	239878	03/06/17 17:21	Z1T	TAL SEA

## Client Sample ID: MW003R-E4

Date Collected: 02/22/17 14:00

Date Received: 02/23/17 14:28

## Lab Sample ID: 580-66278-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			239532	03/01/17 14:24	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		1	239596	03/02/17 13:22	CJ	TAL SEA
Total/NA	Analysis	SM 2540D		1	239304	02/25/17 16:19	Z1T	TAL SEA
Dissolved	Analysis	SM 5310B		4	239883	03/07/17 00:21	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	239878	03/06/17 17:21	Z1T	TAL SEA

## Client Sample ID: MW005R-E4

Date Collected: 02/22/17 15:00

Date Received: 02/23/17 14:28

## Lab Sample ID: 580-66278-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			239532	03/01/17 14:24	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		1	239596	03/02/17 13:44	CJ	TAL SEA
Total/NA	Analysis	SM 2540D		1	239304	02/25/17 16:19	Z1T	TAL SEA

TestAmerica Seattle

# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 5310B		4	239883	03/07/17 00:21	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	239878	03/06/17 17:21	Z1T	TAL SEA

**Client Sample ID: MW006R-E4**

**Lab Sample ID: 580-66278-5**

Date Collected: 02/22/17 16:05

Matrix: Water

Date Received: 02/23/17 14:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			239532	03/01/17 14:24	JCV	TAL SEA
Total/NA	Analysis	8270D SIM		1	239596	03/02/17 14:06	CJ	TAL SEA
Total/NA	Analysis	SM 2540D		1	239304	02/25/17 16:19	Z1T	TAL SEA
Dissolved	Analysis	SM 5310B		4	239883	03/07/17 00:21	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	239878	03/06/17 17:21	Z1T	TAL SEA

**Client Sample ID: MW010-E4**

**Lab Sample ID: 580-66278-6**

Date Collected: 02/22/17 15:45

Matrix: Water

Date Received: 02/23/17 14:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239974	03/08/17 10:50	ADB	TAL SEA
Dissolved	Analysis	6010C		1	240137	03/09/17 12:20	HJM	TAL SEA
Dissolved	Analysis	365.1		1	239272	02/24/17 10:55	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/06/17 08:38	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239304	02/25/17 16:19	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363620	02/27/17 20:11	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		4	239883	03/07/17 00:21	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	239878	03/06/17 17:21	Z1T	TAL SEA

**Client Sample ID: MW013-E4**

**Lab Sample ID: 580-66278-7**

Date Collected: 02/22/17 14:45

Matrix: Water

Date Received: 02/23/17 14:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239974	03/08/17 10:50	ADB	TAL SEA
Dissolved	Analysis	6010C		1	240137	03/09/17 12:23	HJM	TAL SEA
Dissolved	Analysis	365.1		1	239272	02/24/17 10:55	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/06/17 08:38	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239411	02/28/17 10:01	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363620	02/27/17 20:11	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		4	240559	03/14/17 23:14	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	239878	03/06/17 17:21	Z1T	TAL SEA



# Lab Chronicle

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

## Client Sample ID: MW007-E4

Lab Sample ID: 580-66278-8

Date Collected: 02/22/17 17:00

Matrix: Water

Date Received: 02/23/17 14:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239974	03/08/17 10:50	ADB	TAL SEA
Dissolved	Analysis	6010C		1	240137	03/09/17 12:27	HJM	TAL SEA
Dissolved	Prep	3005A			239974	03/08/17 10:50	ADB	TAL SEA
Dissolved	Analysis	6020A		5	240115	03/09/17 09:26	FCW	TAL SEA
Total Recoverable	Prep	3005A			239974	03/08/17 10:50	ADB	TAL SEA
Total Recoverable	Analysis	6020A		5	240115	03/09/17 09:31	FCW	TAL SEA
Dissolved	Analysis	365.1		1	239272	02/24/17 10:55	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/06/17 08:38	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239411	02/28/17 10:01	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363620	02/27/17 20:11	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		1	240559	03/14/17 23:14	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	240558	03/14/17 16:05	Z1T	TAL SEA

## Client Sample ID: MW507-E4

Lab Sample ID: 580-66278-9

Date Collected: 02/22/17 17:15

Matrix: Water

Date Received: 02/23/17 14:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239974	03/08/17 10:50	ADB	TAL SEA
Dissolved	Analysis	6010C		1	240137	03/09/17 12:30	HJM	TAL SEA
Dissolved	Analysis	365.1		1	239272	02/24/17 10:55	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/06/17 08:38	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239411	02/28/17 10:01	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363620	02/27/17 20:11	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		1	240559	03/14/17 23:14	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		1	240558	03/14/17 16:05	Z1T	TAL SEA

## Client Sample ID: MW008-E4

Lab Sample ID: 580-66278-10

Date Collected: 02/23/17 11:50

Matrix: Water

Date Received: 02/23/17 14:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	239411	02/28/17 10:01	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363620	02/27/17 20:13	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		4	240559	03/14/17 23:14	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	240558	03/14/17 16:05	Z1T	TAL SEA

# Lab Chronicle

Client: GSI Water Solutions, Inc  
 Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

**Client Sample ID: MW012-E4**

**Lab Sample ID: 580-66278-11**

Date Collected: 02/23/17 11:25

Matrix: Water

Date Received: 02/23/17 14:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239974	03/08/17 10:50	ADB	TAL SEA
Dissolved	Analysis	6010C		1	240137	03/09/17 12:33	HJM	TAL SEA
Dissolved	Analysis	365.1		1	239272	02/24/17 10:55	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/06/17 08:38	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239411	02/28/17 10:01	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363620	02/27/17 20:13	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		4	240559	03/14/17 23:14	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	240558	03/14/17 16:05	Z1T	TAL SEA

**Client Sample ID: MW009-E4**

**Lab Sample ID: 580-66278-12**

Date Collected: 02/23/17 12:45

Matrix: Water

Date Received: 02/23/17 14:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			239974	03/08/17 10:50	ADB	TAL SEA
Dissolved	Analysis	6010C		1	240137	03/09/17 12:36	HJM	TAL SEA
Dissolved	Analysis	365.1		1	239272	02/24/17 10:55	EMM	TAL SEA
Dissolved	Analysis	SM 2320B		1	239854	03/07/17 08:40	EMM	TAL SEA
Total/NA	Analysis	SM 2540D		1	239411	02/28/17 10:01	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363620	02/27/17 20:13	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		4	240559	03/15/17 11:14	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		4	240558	03/15/17 11:02	Z1T	TAL SEA

**Client Sample ID: B006R-E4**

**Lab Sample ID: 580-66278-13**

Date Collected: 02/23/17 12:45

Matrix: Water

Date Received: 02/23/17 14:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	239411	02/28/17 10:01	Z1T	TAL SEA
Dissolved	Analysis	SM 4500 S2 D		1	363620	02/27/17 20:13	ALS	TAL DEN
Dissolved	Analysis	SM 5310B		8	240559	03/15/17 11:14	Z1T	TAL SEA
Total/NA	Analysis	SM 5310B		8	240558	03/15/17 11:02	Z1T	TAL SEA

**Laboratory References:**

SC0056 = Analytical Resources, Inc, 4611 South 134th Place, Suite 100, Tukwila, WA 98168, TEL (206)695-6200

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Certification Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

## Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-18

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
365.1		Water	ortho-Phosphate
6020A	3005A	Water	Arsenic
6020A	3005A	Water	Iron
6020A	3005A	Water	Manganese
SM 2320B		Water	Hydroxide Alkalinity as CaCO <sub>3</sub>
SM 5310B		Water	Dissolved Organic Carbon

## Laboratory: TestAmerica Denver

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C583	08-02-17

# Sample Summary

Client: GSI Water Solutions, Inc  
Project/Site: Parcel 15 RI - POT

TestAmerica Job ID: 580-66278-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-66278-1	B005R-E4	Water	02/22/17 11:55	02/23/17 14:28
580-66278-2	B505R-E4	Water	02/22/17 11:30	02/23/17 14:28
580-66278-3	MW003R-E4	Water	02/22/17 14:00	02/23/17 14:28
580-66278-4	MW005R-E4	Water	02/22/17 15:00	02/23/17 14:28
580-66278-5	MW006R-E4	Water	02/22/17 16:05	02/23/17 14:28
580-66278-6	MW010-E4	Water	02/22/17 15:45	02/23/17 14:28
580-66278-7	MW013-E4	Water	02/22/17 14:45	02/23/17 14:28
580-66278-8	MW007-E4	Water	02/22/17 17:00	02/23/17 14:28
580-66278-9	MW507-E4	Water	02/22/17 17:15	02/23/17 14:28
580-66278-10	MW008-E4	Water	02/23/17 11:50	02/23/17 14:28
580-66278-11	MW012-E4	Water	02/23/17 11:25	02/23/17 14:28
580-66278-12	MW009-E4	Water	02/23/17 12:45	02/23/17 14:28
580-66278-13	B006R-E4	Water	02/23/17 12:45	02/23/17 14:28



06 March 2017

Sheri Cruz  
Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

RE: Parcel 15 RI-POT

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

<u>Associated Work Order(s)</u>	<u>Associated SDG ID(s)</u>
17B0347	N/A

-----

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Mark Harris, Project Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



1780347

TestAmerica Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Phone (253) 922-2310 Fax (253) 922-5047

### Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:				
Client Contact: Shipping/Receiving		Phone:	Cruz, Sheri L	State of Origin: Washington	580-44556-1				
Company: Analytical Resources, Inc		E-Mail: sheri.cruz@testamericainc.com		Page: Page 1 of 1	Job #: 580-66278-1				
Address: 4611 South 134th Place, Suite 100,		Accreditations Required (See note): State Program - Washington		Preservation Codes: A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:					
City: Tukwila		Due Date Requested: 3/13/2017		M - Hexane N - None O - AsNbO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecalhydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)					
State, Zip: WA, 98168		TAT Requested (days):		Total Number of containers					
Phone: 206-695-6200(Tel)		PO #:		Special Instructions/Note:					
Email:		WO #:							
Project Name: Parcel 15 RI - POT		Project #: 58009703							
Site: SSOW#:		SSOW#:							
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, AA=Air)	Field Filtered Sample (Yes or No)	300_48HR (MOD) Major Ions (NO3, NO2, field file)	Perform MS/MSD (Yes or No)	300_48HR (MOD) Major Ions (NO3, NO2, field file)	Preservation Code:
MW010-E4 ( <del>58009703-1</del> )	2/22/17	15:45 Pacific		Water	X	X	X	X	300_48HR
MW013-E4 ( <del>58009703-2</del> )	2/22/17	14:45 Pacific		Water	X	X	X	X	300_48HR
MW007-E4 ( <del>58009703-3</del> )	2/22/17	17:00 Pacific		Water	X	X	X	X	300_48HR
MW507-E4 ( <del>58009703-4</del> )	2/22/17	17:15 Pacific		Water	X	X	X	X	300_48HR
MW012-E4 ( <del>58009703-5</del> )	2/23/17	11:25 Pacific		Water	X	X	X	X	300_48HR
MW009-E4 ( <del>58009703-6</del> )	2/23/17	12:45 Pacific		Water	X	X	X	X	300_48HR
<p><b>Possible Hazard Identification</b></p> <p>Unconfirmed</p> <p>Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2</p> <p>Empty Kit Relinquished by: _____ Date: _____</p> <p>Relinquished by: <i>Tom Bland</i> Date: <i>2/24/17 11:23</i> Company: <i>7A-Sea</i></p> <p>Relinquished by: _____ Date: _____ Company: _____</p> <p>Relinquished by: _____ Date: _____ Company: _____</p> <p>Custody Seals Intact: _____ Custody Seal No.: _____</p> <p>Δ Yes Δ No</p>									





# Cooler Receipt Form

ARI Client: Test America

Project Name: \_\_\_\_\_

COC No(s): \_\_\_\_\_ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: 17B0347

Tracking No: \_\_\_\_\_ NA

**Preliminary Examination Phase:**

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 0.1

Time: \_\_\_\_\_

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 0885276

Cooler Accepted by: PM Date: 2/24/2017 Time: 10:23

*Complete custody forms and attach all shipping documents*

**Log-In Phase:**

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: \_\_\_\_\_

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: \_\_\_\_\_ NA

Was Sample Split by ARI : NA YES Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

Samples Logged by: PM Date: 2/24/2017 Time: 10:30

**\*\* Notify Project Manager of discrepancies or concerns \*\***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

**Additional Notes, Discrepancies, & Resolutions:**

By: \_\_\_\_\_ Date: \_\_\_\_\_

			Small → "sm" (< 2 mm)
			Peabubbles → "pb" (2 to < 4 mm)
			Large → "lg" (4 to < 6 mm)
			Headspace → "hs" (> 6 mm)



Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 RI-POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

**Reported:**  
06-Mar-2017 08:21

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW010-E4	17B0347-01	Water	22-Feb-2017 15:45	24-Feb-2017 10:23
MW013-E4	17B0347-02	Water	22-Feb-2017 14:45	24-Feb-2017 10:23
MW007-E4	17B0347-03	Water	22-Feb-2017 17:00	24-Feb-2017 10:23
MW507-E4	17B0347-04	Water	22-Feb-2017 17:15	24-Feb-2017 10:23
MW012-E4	17B0347-05	Water	23-Feb-2017 11:25	24-Feb-2017 10:23
MW009-E4	17B0347-06	Water	23-Feb-2017 12:45	24-Feb-2017 10:23







Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 RI-POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

Reported:  
06-Mar-2017 08:21

## Case Narrative

**Client:** Test America-Tacoma  
**Project:** Parcel 15 RI-POT  
**Workorder:** 17B0347

### Sample receipt

6 samples were received 24-Feb-2017 10:23 under ARI work order 17B0347. For details regarding sample receipt, please refer to the Cooler Receipt Form. The analyses for bromide, chloride, fluoride and sulfate were added to all samples as requested on 2/28/17.

### Wet Chemistry

These samples were prepared and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

No target compounds were detected in the method blank above the LOQs..

The percent recoveries for all compounds were within acceptable QC limits for the LCS.

A matrix spike (MS) was prepared and analyzed in conjunction with sample 'MW010-E4'. The percent recoveries for all anions were within acceptable QC limits for the MS.

A matrix duplicate (MD) was prepared and analyzed in conjunction with sample 'MW010-E4'. The RPDs for all anions were within acceptable QC limits for the MD.





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	Reported: 06-Mar-2017 08:21
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**MW010-E4**  
**17B0347-01 (Water)**

**Wet Chemistry**

Method: EPA 300.0  
Instrument: DX2100  
Sampled: 02/22/2017 15:45  
Analyzed: 02/24/2017 11:48

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFB0621 Sample Size: 5 mL  
Prepared: 02/24/2017 10:48 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	1	0.100	<b>0.147</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	<b>0.415</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	<b>0.501</b>	mg/L	





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 06-Mar-2017 08:21
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**MW010-E4**  
**17B0347-01RE1 (Water)**

**Wet Chemistry**

Method: EPA 300.0  
Instrument: DX2100

Sampled: 02/22/2017 15:45  
Analyzed: 03/01/2017 01:52

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFB0621 Sample Size: 5 mL  
Prepared: 02/24/2017 10:48 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	2	0.200	<b>9.57</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	Reported: 06-Mar-2017 08:21
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**MW013-E4**  
**17B0347-02 (Water)**

**Wet Chemistry**

Method: EPA 300.0  
Instrument: DX2100  
Sampled: 02/22/2017 14:45  
Analyzed: 02/24/2017 11:28

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFB0621 Sample Size: 5 mL  
Prepared: 02/24/2017 10:48 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	2.12	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	0.110	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	3.34	mg/L	



Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	Reported: 06-Mar-2017 08:21
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**MW007-E4**  
**17B0347-03 (Water)**

**Wet Chemistry**

Method: EPA 300.0  
Instrument: DX2100  
Sampled: 02/22/2017 17:00  
Analyzed: 02/24/2017 12:46

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFB0621 Sample Size: 5 mL  
Prepared: 02/24/2017 10:48 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	<b>3.56</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	<b>0.359</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	U





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 06-Mar-2017 08:21
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**MW007-E4**  
**17B0347-03RE1 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/22/2017 17:00
Instrument: DX2100	Analyzed: 03/01/2017 03:35
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFB0621
	Sample Size: 5 mL
	Prepared: 02/24/2017 10:48
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	10	1.00	<b>44.2</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	Reported: 06-Mar-2017 08:21
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**MW507-E4**  
**17B0347-04 (Water)**

**Wet Chemistry**

Method: EPA 300.0  
Instrument: DX2100  
Sampled: 02/22/2017 17:15  
Analyzed: 02/24/2017 13:06

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFB0621 Sample Size: 5 mL  
Prepared: 02/24/2017 10:48 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	<b>3.56</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	<b>0.362</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	U





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 06-Mar-2017 08:21
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**MW507-E4**  
**17B0347-04RE1 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/22/2017 17:15
Instrument: DX2100	Analyzed: 03/01/2017 03:54
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFB0621
	Sample Size: 5 mL
	Prepared: 02/24/2017 10:48
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	10	1.00	<b>43.9</b>	mg/L	D







Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 06-Mar-2017 08:21
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**MW012-E4**  
**17B0347-05 (Water)**

**Wet Chemistry**

Method: EPA 300.0  
Instrument: DX2100

Sampled: 02/23/2017 11:25  
Analyzed: 02/24/2017 13:26

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFB0621 Sample Size: 5 mL  
Prepared: 02/24/2017 10:48 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	1	0.100	<b>0.403</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	<b>0.778</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	<b>0.460</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	U





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 06-Mar-2017 08:21
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**MW012-E4**  
**17B0347-05RE1 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/23/2017 11:25
Instrument: DX2100	Analyzed: 03/01/2017 04:14
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFB0621
	Sample Size: 5 mL
	Prepared: 02/24/2017 10:48
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	20	2.00	<b>47.8</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 06-Mar-2017 08:21
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**MW012-E4**  
**17B0347-05RE2 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/23/2017 11:25
Instrument: DX2100	Analyzed: 03/01/2017 04:33
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFB0621
	Sample Size: 5 mL
	Prepared: 02/24/2017 10:48
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	2	0.200	<b>7.35</b>	mg/L	D





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	Reported: 06-Mar-2017 08:21
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**MW009-E4**  
**17B0347-06 (Water)**

**Wet Chemistry**

Method: EPA 300.0  
Instrument: DX2100  
Sampled: 02/23/2017 12:45  
Analyzed: 02/24/2017 13:46

Sample Preparation: Preparation Method: No Prep Wet Chem  
Preparation Batch: BFB0621 Sample Size: 5 mL  
Prepared: 02/24/2017 10:48 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Bromide	24959-67-9	1	0.100	<b>0.262</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Fluoride	16984-48-8	1	0.100	<b>0.912</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	<b>1.79</b>	mg/L	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	<b>1.06</b>	mg/L	





Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 06-Mar-2017 08:21
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**MW009-E4**  
**17B0347-06RE1 (Water)**

**Wet Chemistry**

Method: EPA 300.0	Sampled: 02/23/2017 12:45
Instrument: DX2100	Analyzed: 03/01/2017 04:53
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BFB0621
	Sample Size: 5 mL
	Prepared: 02/24/2017 10:48
	Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	5	0.500	<b>19.4</b>	mg/L	D





Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 RI-POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

Reported:  
06-Mar-2017 08:21

Wet Chemistry - Quality Control

Batch BFB0621 - No Prep Wet Chem

Instrument: DX2100

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BFB0621-BLK1)</b> Prepared: 24-Feb-2017 Analyzed: 24-Feb-2017 14:26										
Bromide	ND	0.100	mg/L							U
Chloride	ND	0.100	mg/L							U
Fluoride	ND	0.100	mg/L							U
Nitrate-N	ND	0.100	mg/L							U
Nitrite-N	ND	0.100	mg/L							U
Sulfate	ND	0.100	mg/L							U
<b>LCS (BFB0621-BS1)</b> Prepared: 24-Feb-2017 Analyzed: 24-Feb-2017 15:28										
Bromide	2.97	0.100	mg/L	3.00		99.0 %	75-125			
Chloride	3.08	0.100	mg/L	3.00		103 %	75-125			
Fluoride	3.12	0.100	mg/L	3.00		104 %	75-125			
Nitrate-N	3.01	0.100	mg/L	3.00		100 %	75-125			
Nitrite-N	3.10	0.100	mg/L	3.00		103 %	75-125			
Sulfate	3.20	0.100	mg/L	3.00		107 %	75-125			
<b>Duplicate (BFB0621-DUP1)</b> Source: 17B0347-01 Prepared: 24-Feb-2017 Analyzed: 24-Feb-2017 12:07										
Bromide	0.147	0.100	mg/L		0.147			0.00		
Fluoride	0.414	0.100	mg/L		0.415			0.24	20	
Nitrate-N	ND	0.100	mg/L		ND					U
Nitrite-N	ND	0.100	mg/L		ND					U
Sulfate	0.503	0.100	mg/L		0.501			0.40	20	
<b>Duplicate (BFB0621-DUP2)</b> Source: 17B0347-01RE1 Prepared: 24-Feb-2017 Analyzed: 01-Mar-2017 02:12										
Chloride	9.57	0.200	mg/L		9.57			0.00		D
<b>Matrix Spike (BFB0621-MS1)</b> Source: 17B0347-01 Prepared: 24-Feb-2017 Analyzed: 24-Feb-2017 12:27										
Bromide	1.84	0.100	mg/L	2.00	0.147	84.7 %	75-125			
Fluoride	2.33	0.100	mg/L	2.00	0.415	95.7 %	75-125			
Nitrate-N	2.05	0.100	mg/L	2.00	ND	98.6 %	75-125			
Nitrite-N	2.03	0.100	mg/L	2.00	ND	102 %	75-125			
Sulfate	2.51	0.100	mg/L	2.00	0.501	101 %	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
<b>Matrix Spike (BFB0621-MS2)</b> Source: 17B0347-01RE1 Prepared: 24-Feb-2017 Analyzed: 01-Mar-2017 03:14										
Chloride	18.7	0.500	mg/L	10.0	9.57	91.3 %	75-125			D



Test America-Tacoma 5755 8th Street East Tacoma, WA 98424	Project: Parcel 15 RI-POT Project Number: 58009703 Project Manager: Sheri Cruz	<b>Reported:</b> 06-Mar-2017 08:21
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**Wet Chemistry - Quality Control**

**Batch BFB0621 - No Prep Wet Chem**

Instrument: DX2100

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Recovery limits for target analytes in MS/MSD QC samples are advisory only.



Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 RI-POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

**Reported:**  
06-Mar-2017 08:21

**Certified Analyses included in this Report**

Analyte	Certifications
<b>EPA 300.0 in Water</b>	
Bromide	DoD-ELAP,WADOE,NELAP
Chloride	DoD-ELAP,WADOE,WA-DW,NELAP
Fluoride	DoD-ELAP,WADOE,WA-DW
Nitrate-N	DoD-ELAP,WADOE,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WADOE,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,WA-DW,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017







Test America-Tacoma  
5755 8th Street East  
Tacoma, WA 98424

Project: Parcel 15 RI-POT  
Project Number: 58009703  
Project Manager: Sheri Cruz

**Reported:**  
06-Mar-2017 08:21

**Notes and Definitions**

- D The reported value is from a dilution
- U This analyte is not detected above the applicable reporting or detection limit.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.



 55 SW Yamhill St, Suite 300  
Portland, Oregon 97204  
503.239.8700

### Chain of Custody Record

Field Sampler(s):  
GSI

**Client Contact**  
Project Name: Parcel 15 - POT  
Project # or PO #: 603.002.014  
Project Manager: Erin Hughes  
Phone #: 971-200-8528  
Report to email: echughes@gsiws.com

**For Lab Use Only:**  
SDG: \_\_\_\_\_  
Custody Seals intact?  
Hand delivered?  
Cooler Temp: \_\_\_\_\_ °C  
Therm ID No.: \_\_\_\_\_ Therm Exp. \_\_\_\_\_

**Laboratory**  
TestAmerica  
Brooks

**Lab PM**  
Brooks  
Ben Wozniak  
206-753-6158

**Analysis Turnaround Time:**  
Standard 21 day TAT on Most Analyses  
Rush 5 day on Dissolved Metals in Porewater

**Analysis Requested**

SM5310B: Total Organic Carbon (field filtered)	SM5310B: Dissolved Organic Carbon (field filtered)	SM4500 S 2D: Sulfide (dissolved; field filtered)	SM2540D: Total Suspended Solids (TSS)	6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)*	300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)**	300.0: Nitrate and Nitrite (dissolved; field filtered)	SM2320B: Alkalinity (field filtered)***	365.1: Major Anions (Orthophosphate; dissolved; field filtered)	6020A: Arsenic (total)	6020A: Arsenic, Iron, and Manganese (dissolved; field filtered)	8260D SIM: Pentachlorophenol	1638M: Arsenic (total)	1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)***	Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)
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TestAmerica  
Sheri Cruz  
253-248-4960

Sample Identification	Sample Date	Sample Time	Field Conductivity (uS/cm)	Sample Type (C=Comp, G=Grab)	Matrix	Total # of Cont.
-----------------------	-------------	-------------	----------------------------	------------------------------	--------	------------------

B005R-E4	2/22/17	1155	483	G	W	
B505R-E4		1130	483			
MW003R-E4		1400	683			
MW005R-E4		1500	389			
MW006R-E4		1605	617			
MW010-E4	1545	1640	1126			
MW013-E4		1445	631			
MW007-E4		1700	187			
MW007-E4	✓	1715	187	↓	↓	
MW008-E4	2/23/17	1150	1800	G	W	
MW012-E4		1125	1010	↓	↓	
MW009-E4	↓	1245	919	↓	↓	

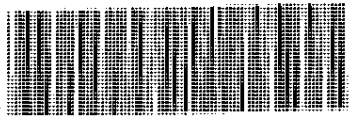
X	X	X	X							X	X	X	X	
X	X	X	X								X	X	X	
X	X		X								X	X	X	
X	X		X								X	X	X	
X	X	X	X	X	X	X	X	X						X
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X						
X	X	X	X	X	X	X	X	X						
X	X	X	X	X	X	X	X	X						


Sample Specific Notes

**Possible Hazard Identification:**  
Are samples hazardous?  Yes  No  
If yes, select hazard(s):  Listed  Ignitable  Corrosive  Reactive  Toxic  
Relinquished by: Vence Fowle Date/Time: 2/23/17 1430

**Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.)**  
 Return to Client  Disposal by Lab  Archive frozen for 1 year  
Received by: M Bruce McCarroll Date/Time: 2/23/17 1428

**Special Instructions/QC Requirements**  
\*Major Cations include calcium, magnesium, potassium, and sodium.  
\*\*Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate.  
\*\*\*Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3.  
Please contact Cindy Ryals at 971-200-8531 with any questions.



 <p>55 SW Yamhill St, Suite 300 Portland, Oregon 97204 503.239.8700</p>	Chain of Custody Record						Field Sampler(s): GSI	
<b>Client Contact</b> Project Name: Parcel 15 - POT Project # or PO #: 603.002.014 Project Manager: Erin Hughes Phone #: 971-200-8528 Report to email: echughes@gsiws.com	<b>For Lab Use Only:</b> SDG: _____ Custody Seals intact? Hand delivered? Cooler Temp : _____ °C Therm ID No.: _____ Therm Exp. _____						<b>Laboratory</b> TestAmerica Brooks	<b>Lab PM</b> Brooks Ben Wozniak 206-753-6158  TestAmerica Sheri Cruz 253-248-4960
<b>Analysis Turnaround Time:</b> Standard 21 day TAT on Most Analyses Rush 5 day on Dissolved Metals in Porewater							<b>Analysis Requested</b>	
<b>Sample Identification</b>	<b>Sample Date</b>	<b>Sample Time</b>	<b>Field Conductivity (uS/cm)</b>	<b>Sample Type (C=Comp, G=Grab)</b>	<b>Matrix</b>	<b>Total # of Cont.</b>	SMS310B: Total Organic Carbon SMS310B: Dissolved Organic Carbon (field filtered) SMA500 S 2D: Sulfide (dissolved; field filtered) SM2540D: Total Suspended Solids (TSS) 6010C: Major Cations (Ca, Mg, K, Na; dissolved; field filtered)* 300.0: Major Anions (Br, Cl, F, SO4; dissolved; field filtered)** 300.0: Nitrate and Nitrite (dissolved; field filtered) SM2320B: Alkalinity (field filtered)*** 365.1: Major Anions (Orthophosphate; dissolved; field filtered) 6020A: Arsenic (total) 6020A: Arsenic, Iron, and Manganese (dissolved; field filtered) 8260D SIM: Pentachlorophenol 1638M: Arsenic (total) 1638M: Arsenic, Iron, and Manganese (dissolved; field filtered)*** Arsenic Speciation - As (III)/As(V) (dissolved; field filtered)	Sample Specific Notes
MWS BOOGE - E4	2/23/17	1245	2008	G	W	1	X X X X	X X
<b>Possible Hazard Identification:</b> Are samples hazardous? <input checked="" type="checkbox"/> No If yes, <input type="checkbox"/> Listed <input type="checkbox"/> Ignitable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Toxic select hazard(s): Relinquished by: <u>René Fouré</u> Date/Time: <u>2/23/17 1430</u>							Sample Disposal (A fee may be added if samples are retained longer than 30 day per client request, samples are returned to client, or classified as hazardous.) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive frozen for 1 year	
Relinquished by: _____ Date/Time: _____ Shipped Via: <input type="checkbox"/> UPS <input type="checkbox"/> Fed-Ex <input type="checkbox"/> USPS <input type="checkbox"/> Other Tracking #: _____							Received by: <u>Maureen McDonnell</u> Date/Time: <u>2/23/17 1428</u> Received in Laboratory by: _____ Date/Time: _____	
<b>Special Instructions/QC Requirements</b> *Major Cations include calcium, magnesium, potassium, and sodium. **Major anions include sulfate, chloride, bromide, fluoride, and ortho-phosphate. ***Alkalinity includes total, carbonate as CaCO3, bicarbonate as CaCO3, and hydroxide as CaCO3. Please contact Cindy Ryals at 971-200-8531 with any questions.								

Cooler 1  
TB Cooler IR4 Cor 1.7 Unc 2.3  
Cooler Dsc 19. blue white @ Lab  
Wet/Packs Packing bubble  
cli drop w/o cs

Cooler 2  
TB Cooler IR4 Cor 0.5 Unc 0.9  
Cooler Dsc 19. blue white @ Lab  
Wet/Packs Packing bubble  
cli drop w/o cs

Cooler 3  
TB A2 Cooler Cor 4.8 Unc 5.7  
Cooler Dsc 19. blue white @ Lab  
Wet/Packs Packing bubble  
cli drop w/o cs

Cooler 4  
TB A2 Cooler Cor 2.3 Unc 4.2  
Cooler Dsc 19. blue white @ Lab  
Wet/Packs Packing bubble  
cli drop w/o cs

Cooler 5  
TB A2 Cooler Cor 3.7 Unc 4.6  
Cooler Dsc 19. blue white @ Lab  
Wet/Packs Packing bubble  
cli drop w/o cs





**Chain of Custody Record**

<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PM:	Carrier Tracking No(s):	
Client Contact: Shipping/Receiving		Phone:	Cruz, Sheri L	580-44591.2	
Company: TestAmerica Laboratories, Inc.		E-Mail:	sherl.cruz@testamericainc.com	Page: Page 2 of 2	
Address: 4955 Yarrow Street,		Accreditations Required (See note): State Program - Washington		Job #: 580-66278-1	
City: Arvada	Due Date Requested: 3/13/2017	<b>Analysis Requested</b>			
State, Zip: CO, 80002	TAT Requested (days):				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:				
Email:	WO #:				
Project Name: Parcel 15 RI - POT	Project #: 58009703	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_S2_D/FIELD_FLTRD Dissolved Sulfide, field-filtered	Total Number of containers
Site:	SSOW#:	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=soil/sediment, ET=Tissue, A=air)
<b>Sample Identification - Client ID (Lab ID)</b>		2/23/17	12:45 Pacific	Water	Preservation Code:
B006R-E4 (580-66278-13)					
Special Instructions/Note:					
Other:					
M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA L - EDA Z - other (specify)					

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. |

<b>Possible Hazard Identification</b>		Date:	
Unconfirmed	Primary Deliverable Rank: 2	Date/Time:	2/24/17
Deliverable Requested: I, II, III, IV, Other (specify)		Date/Time:	1456 TA-Sca
Empty Kit Relinquished by:		Date/Time:	
Relinquished by: <i>W. Brant</i>		Date/Time:	
Relinquished by:		Date/Time:	
Custody Seals Intact	Custody Seal No:	Relinquished by:	
Δ Yes Δ No		Date/Time:	

<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>	
<input type="checkbox"/> Return To Client	<input type="checkbox"/> Disposal By Lab
Special Instructions/QC Requirements:	
Method of Shipment:	Archive For: Months
Received by: <i>W. Brant</i>	Company: <i>TA-Sca</i>
Date/Time: 2/25/17 09:25	Company: <i>TA-Sca</i>
Received by:	Company:
Date/Time:	Company:
Received by:	Company:
Date/Time:	Company:
Cooler Temperature(s) °C and Other Remarks:	



## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-66278-1

**Login Number: 66278**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: Gall, Brandon A**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	IDs on containers do not match the COC for samples 3&13. Logged in per COC.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: GSI Water Solutions, Inc

Job Number: 580-66278-1

**Login Number: 66278**

**List Number: 2**

**Creator: White, Denise E**

**List Source: TestAmerica Denver**

**List Creation: 02/25/17 01:02 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# **Appendix D: Soil Boring and Test Pit Logs and Well Construction Forms**





Boring ID  
MW-5R

Project Number  
603.002

## WELL CONSTRUCTION

Project: Parcel 15 Investigation	Location: Tacoma, Washington
Drilling Contractor: Steadfast	Drilling Method: Hollow Stem Auger
Start Date: May 10, 2016	End Date: May 10, 2016
Field Personnel: E. Hughes	
TOC Elev (& datum):	GS Elev (& datum):
Static Water Levels:	OWRD ID:

Well Construction Drawing (below ground completion)	Well Construction Materials								
<p>(ground surface)</p> <p style="text-align: center;">NOT TO SCALE</p> <p>bgs = below ground surface</p>	<p>Borehole TD (ft bgs): 15'      Well TD (ft bgs): 15</p> <p>Borehole Diameter: 8 inches to 15 ft bgs</p> <p>Borehole Diameter: inches to ft bgs</p> <p>Monument Type: flush mount      Lockable Cap: no</p> <p>Monument Diam. (in):      Bollards: no</p> <p>Well Casing Type: PVC      Casing Diam. (in): 2</p> <p>Well Casing Interval: 0 to 5 ft bgs</p> <p>Screen Type: PVC      Screen Length (ft): 10</p> <p>Screen Slot Size: 10 slot      Screen Diameter (in): 2</p> <p>Screen Interval: 5 to 15 ft bgs</p> <p>Sump Type: end cap      Sump Length: 3"</p> <p>End Cap Type: PVC      End Cap Length: 2"</p> <p>Centralizer Type: none</p> <p>Centralizer Locations (ft bgs): --</p> <p>Backfill Material:</p> <p>Backfill Interval:</p> <p>Filter Pack Material: 10/20 Colorado Silica Sand</p> <p>Filter Pack Interval: 4 to 15 ft bgs</p> <p>Filter Pack Seal Material:</p> <p>Filter Pack Seal Interval:</p> <p>Bentonite Seal Material: 3/8" hole plug</p> <p>Bentonite Seal Interval: 2 to 4 ft bgs</p> <p>Annular Seal Material:</p> <p>Annular Seal Interval:</p> <p>Surface Seal Material: Cement</p> <p>Surface Seal Interval: 0 to 2 ft bgs</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Material Type:</th> <th style="text-align: left;">Quantity:</th> </tr> </thead> <tbody> <tr> <td>sand</td> <td style="text-align: right;">6 bags</td> </tr> <tr> <td>hole plug chips</td> <td style="text-align: right;">1 bags</td> </tr> <tr> <td>water</td> <td style="text-align: right;">1.5 gallons</td> </tr> </tbody> </table> <p><small>Holeplug: 2"d = 1.6 lb/ft, 4"d = 6.3 lb/ft, 6"d = 14.1 lb/ft; Grout: 20% solids = 3.6 ft<sup>3</sup>/bag, 25% = 2.8 ft<sup>3</sup>/bag Sand: 2"d = 6.6 lb/ft, 4"d = 17.5 lb/ft, 6"d = 23.7 lb/ft</small></p> <p>Notes (i.e., grout emplacement [tremied, poured, tamped], water source): surge to ensure sand to 4' (dropped 4" during surging) 1/2 drum cuttings</p>	Material Type:	Quantity:	sand	6 bags	hole plug chips	1 bags	water	1.5 gallons
Material Type:	Quantity:								
sand	6 bags								
hole plug chips	1 bags								
water	1.5 gallons								



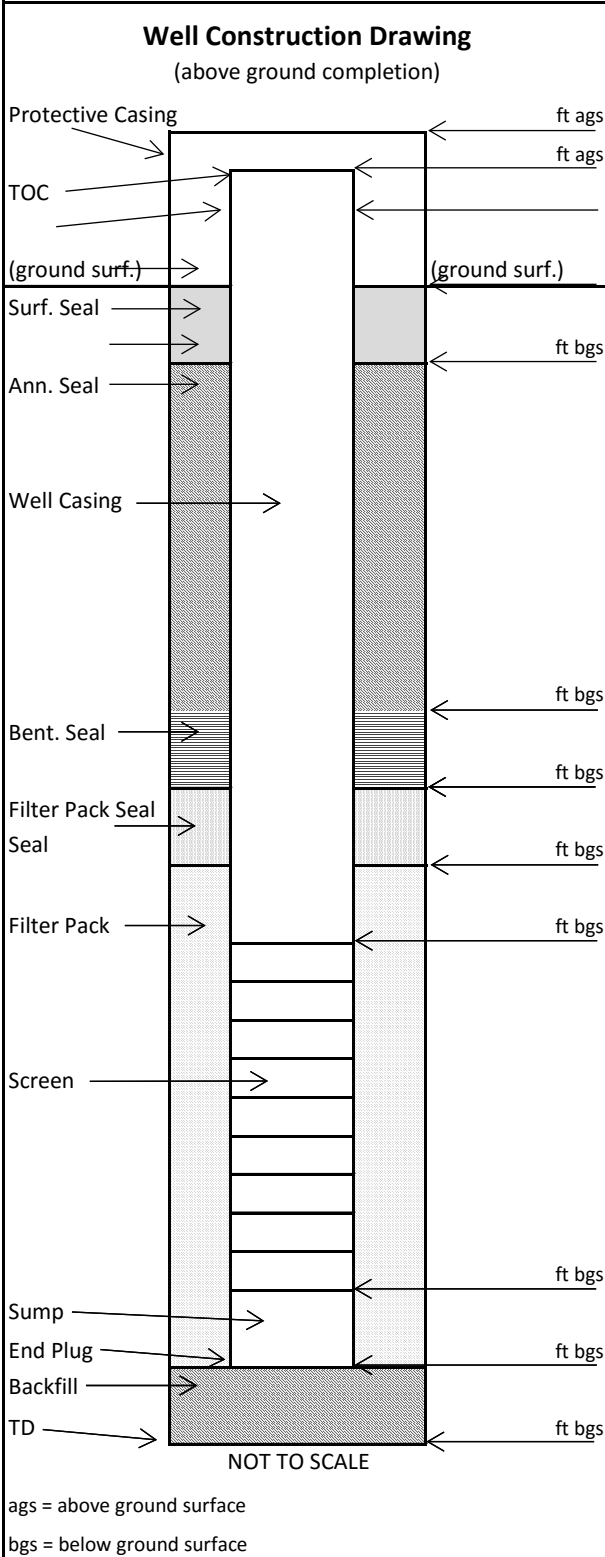


Boring ID  
MW-7

Project Number  
603.002

## WELL CONSTRUCTION

Project: Parcel 15 Investigation		Location: Tacoma, Washington	
Drilling Contractor: Steadfast		Drilling Method: Auger	
Start Date: May 11, 2016	End Date: May 11, 2016	Field Personnel: R Fowler	
TOC Elev (& datum):		GS Elev (& datum):	
Static Water Levels:		OWRD ID:	



Well Construction Materials	
Borehole TD (ft bgs): 15'	Well TD (ft bgs): 15
Borehole Diameter: 8 inches to	15 ft bgs
Borehole Diameter:	inches to ft bgs
Protective Casing Type:	Lockable Cap: yes
Protective Casing Diam (in): 4	Bollards: yes
Well Casing Type: PVC	Casing Diam. (in): 2
Well Casing Interval: 0 to 5 ft bgs	
Screen Type: PVC	Screen Length (ft): 10
Screen Slot Size: 10 slot	Screen Diameter (in): 2
Screen Interval: 5 to 15 ft bgs	
Sump Type: none	Sump Length:
End Cap Type: PVC	End Cap Length: 2"
Centralizer Type: none	
Centralizer Locations (ft bgs): --	
Backfill Material:	
Backfill Interval:	
Filter Pack Material: 10/20 Colorado Silica Sand	
Filter Pack Interval: 4 to 15 ft bgs	
Filter Pack Seal Material:	
Filter Pack Seal Interval:	
Bentonite Seal Material: 3/8" hole plug	
Bentonite Seal Interval: 1.8 to 4 ft bgs	
Annular Seal Material:	
Annular Seal Interval:	
Surface Seal Material: Cement	
Surface Seal Interval: 0 to 1.8 ft bgs	
Material Type:	Quantity:
sand	5.5 bags
hole plug chips	3/4 bags
<small>Holeplug: 2"d = 1.6 lb/ft, 4"d = 6.3 lb/ft, 6"d = 14.1 lb/ft; Grout: 20% solids = 3.6 ft<sup>3</sup>/bag, 25% = 2.8 ft<sup>3</sup>/bag  Sand: 2"d = 6.6 lb/ft, 4"d = 17.5 lb/ft, 6"d = 23.7 lb/ft</small>	
Notes (i.e., grout emplacement [tremied, poured, tamped], water source):	









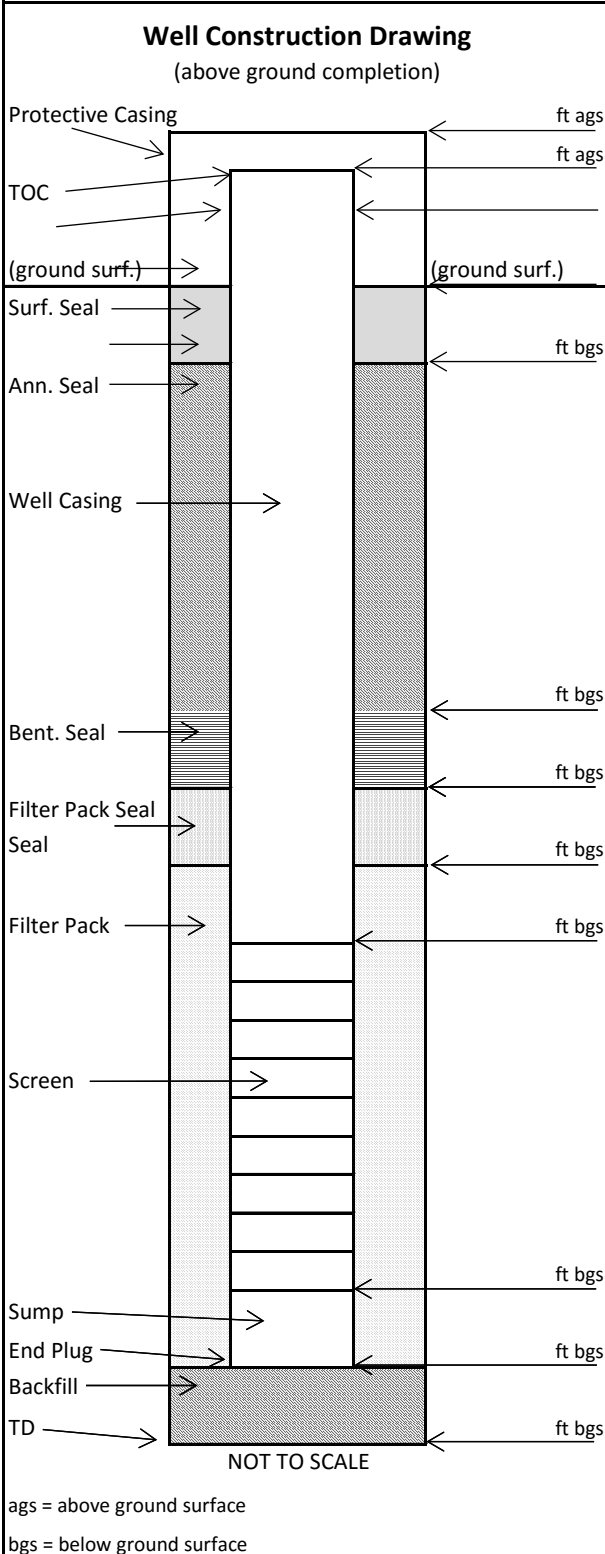


Boring ID  
MW-9

Project Number  
603.002

## WELL CONSTRUCTION

Project: Parcel 15 Investigation	Location: Tacoma, Washington
Drilling Contractor: Steadfast	Drilling Method: Auger
Start Date: May 11, 2016	End Date: May 11, 2016
Field Personnel: R Fowler	
TOC Elev (& datum):	GS Elev (& datum):
Static Water Levels:	OWRD ID:



Well Construction Materials	
Borehole TD (ft bgs): 15'	Well TD (ft bgs): 15
Borehole Diameter: 8 inches to	15 ft bgs
Borehole Diameter:	inches to ft bgs
Protective Casing Type:	Lockable Cap: yes
Protective Casing Diam (in): 4	Bollards: yes
Well Casing Type: PVC	Casing Diam. (in): 2
Well Casing Interval: 0 to 5 ft bgs	
Screen Type: PVC	Screen Length (ft): 10
Screen Slot Size: 10 slot	Screen Diameter (in): 2
Screen Interval: 5 to 15 ft bgs	
Sump Type: none	Sump Length:
End Cap Type: PVC	End Cap Length: 2"
Centralizer Type: none	
Centralizer Locations (ft bgs): --	
Backfill Material:	
Backfill Interval:	
Filter Pack Material: 10/20 Colorado Silica Sand	
Filter Pack Interval: 4 to 15 ft bgs	
Filter Pack Seal Material:	
Filter Pack Seal Interval:	
Bentonite Seal Material: 3/8" hole plug	
Bentonite Seal Interval: 2 to 4 ft bgs	
Annular Seal Material:	
Annular Seal Interval:	
Surface Seal Material: Cement	
Surface Seal Interval: 0 to 2 ft bgs	
Material Type:	Quantity:
sand	6..5 bags
hole plug chips	3/4 bags
<small>Holeplug: 2"d = 1.6 lb/ft, 4"d = 6.3 lb/ft, 6"d = 14.1 lb/ft; Grout: 20% solids = 3.6 ft<sup>3</sup>/bag, 25% = 2.8 ft<sup>3</sup>/bag Sand: 2"d = 6.6 lb/ft, 4"d = 17.5 lb/ft, 6"d = 23.7 lb/ft</small>	
Notes (i.e., grout emplacement [tremied, poured, tamped], water source):	



Boring ID  
MW-10

Project Number  
603.002

Sheet 1 of 1

## SOIL BORING LOG

Project: Parcel 15 Investigation      Location: Tacoma, Washington

Drilling Contractor: Steadfast      Drilling Method: Geoprobe, 7822 DT

Start Date: May 10, 2016      End Date: May 10, 2016      Field Personnel: E Hughes, R Fowler

Sampling Method: Direct Push, MC-7 liner      Water Levels: ~9 ft bgs

Start Card No: L      WA ID:      Total Depth: 20 ft bgs

Depth Below Surface (ft)	Sample		Description  Soil Name, USCS Group Symbol, Color, Moisture, Relative Density/Consistency, Soil Structure, Mineralogy	Comments  Air Monitoring/PID Readings, Sheen/Odor, Issues Encountered, Water Levels
	Drive Interval/Recovery	Lab Sample Interval		
0	NS		0-1.1 RCC Cap	Concrete cored, ground surface from top of cap Organic odor in fill  Slough (gravel) present at top 1.8' of core Perched water observed at 8.6', wet slag in bottom of core ~8.5 to 10' Tagged water level after 15' drive and water at 9.4' which supports perched water idea but isn't dropping further  TD = 20'  Note: (A) Sample interval was submitted for laboratory analysis. All other sample intervals were submitted to the lab for frozen archival.
1.1	90%		1.1-3.8 Well Graded GRAVEL (GW), light gray, 1/4 to 2.5" and angular	
3.8			3.8-5 Slag Containing Fill, dark brown, organic soil with wood and slag	
5	90%		5-9 Slag Containing Fill, discrete 6" slag layer at 8'	
9			9-10 Slag	
10	90%	9-10	10-11.2 Slough	
11.2			11.2-11.8 Poorly Graded SAND (SP)	
11.8			11.8-12.2 No Recovery	
13	90%	12-13 (A)	13-15 SILT (ML), gray green, moist, medium stiff, high content of roots/organics throughout, some plant matter is black	
15.5		15.5-16.5	15-20 Silty SAND (SM), dark gray, wet, medium dense, sand (60%), some red and white lithics	
20	100%			



Boring ID  
MW-10

Project Number  
603.002

## WELL CONSTRUCTION

Project: Parcel 15 Investigation	Location: Tacoma, Washington
Drilling Contractor: Steadfast	Drilling Method: Hollow Stem Auger
Start Date: May 11, 2016	End Date: May 11, 2016
Field Personnel: E. Hughes	
TOC Elev (& datum):	GS Elev (& datum):
Static Water Levels:	OWRD ID:

Well Construction Drawing (below ground completion)	Well Construction Materials																																																																		
<p>(ground surface)</p> <p style="text-align: center;">NOT TO SCALE</p> <p>bgs = below ground surface</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td>Borehole TD (ft bgs): 20</td> <td>Well TD (ft bgs): 17</td> </tr> <tr> <td>Borehole Diameter: 8</td> <td>inches to 16 ft bgs</td> </tr> <tr> <td>Borehole Diameter:</td> <td>inches to ft bgs</td> </tr> <tr> <td>Monument Type: flush mount</td> <td>Lockable Cap: no</td> </tr> <tr> <td>Monument Diam. (in):</td> <td>Bollards: no</td> </tr> <tr> <td>Well Casing Type: PVC</td> <td>Casing Diam. (in): 2</td> </tr> <tr> <td>Well Casing Interval: 0 to 7 ft bgs</td> <td></td> </tr> <tr> <td>Screen Type: PVC</td> <td>Screen Length (ft): 10</td> </tr> <tr> <td>Screen Slot Size: 10 slot</td> <td>Screen Diameter (in): 2</td> </tr> <tr> <td>Screen Interval: 7 to 17 ft bgs</td> <td></td> </tr> <tr> <td>Sump Type: none</td> <td>Sump Length: 3"</td> </tr> <tr> <td>End Cap Type: PVC</td> <td>End Cap Length: 2"</td> </tr> <tr> <td>Centralizer Type: none</td> <td></td> </tr> <tr> <td>Centralizer Locations (ft bgs): --</td> <td></td> </tr> <tr> <td>Backfill Material: Native material</td> <td></td> </tr> <tr> <td>Backfill Interval: 17 to 20 ft bgs</td> <td></td> </tr> <tr> <td>Filter Pack Material: 10/20 Colorado Silica Sand</td> <td></td> </tr> <tr> <td>Filter Pack Interval: 6 to 17 ft bgs</td> <td></td> </tr> <tr> <td>Filter Pack Seal Material: 3/8" hole plug</td> <td></td> </tr> <tr> <td>Filter Pack Seal Interval: 4 to 6 ft bgs</td> <td></td> </tr> <tr> <td>Bentonite Seal Material: 3/4" bentonite chips</td> <td></td> </tr> <tr> <td>Bentonite Seal Interval: 2 to 4 ft bgs</td> <td></td> </tr> <tr> <td>Annular Seal Material:</td> <td></td> </tr> <tr> <td>Annular Seal Interval:</td> <td></td> </tr> <tr> <td>Surface Seal Material: Cement</td> <td></td> </tr> <tr> <td>Surface Seal Interval: 0 to 2 ft bgs</td> <td></td> </tr> <tr> <td>Material Type:</td> <td>Quantity:</td> </tr> <tr> <td>sand</td> <td style="text-align: right;">6 bags</td> </tr> <tr> <td>3/8" chips</td> <td style="text-align: right;">1 bags</td> </tr> <tr> <td>3/4" chips</td> <td style="text-align: right;">1 1/8 bags</td> </tr> <tr> <td>water</td> <td style="text-align: right;">1 gallon</td> </tr> <tr> <td colspan="2"><small>Holeplug: 2"d = 1.6 lb/ft, 4"d = 6.3 lb/ft, 6"d = 14.1 lb/ft; Grout: 20% solids = 3.6 ft<sup>3</sup>/bag, 25% = 2.8 ft<sup>3</sup>/bag Sand: 2"d = 6.6 lb/ft, 4"d = 17.5 lb/ft, 6"d = 23.7 lb/ft</small></td> </tr> <tr> <td colspan="2">Notes (i.e., grout emplacement [tremied, poured, tamped], water source): Dyed concrete to blend in</td> </tr> </table>	Borehole TD (ft bgs): 20	Well TD (ft bgs): 17	Borehole Diameter: 8	inches to 16 ft bgs	Borehole Diameter:	inches to ft bgs	Monument Type: flush mount	Lockable Cap: no	Monument Diam. (in):	Bollards: no	Well Casing Type: PVC	Casing Diam. (in): 2	Well Casing Interval: 0 to 7 ft bgs		Screen Type: PVC	Screen Length (ft): 10	Screen Slot Size: 10 slot	Screen Diameter (in): 2	Screen Interval: 7 to 17 ft bgs		Sump Type: none	Sump Length: 3"	End Cap Type: PVC	End Cap Length: 2"	Centralizer Type: none		Centralizer Locations (ft bgs): --		Backfill Material: Native material		Backfill Interval: 17 to 20 ft bgs		Filter Pack Material: 10/20 Colorado Silica Sand		Filter Pack Interval: 6 to 17 ft bgs		Filter Pack Seal Material: 3/8" hole plug		Filter Pack Seal Interval: 4 to 6 ft bgs		Bentonite Seal Material: 3/4" bentonite chips		Bentonite Seal Interval: 2 to 4 ft bgs		Annular Seal Material:		Annular Seal Interval:		Surface Seal Material: Cement		Surface Seal Interval: 0 to 2 ft bgs		Material Type:	Quantity:	sand	6 bags	3/8" chips	1 bags	3/4" chips	1 1/8 bags	water	1 gallon	<small>Holeplug: 2"d = 1.6 lb/ft, 4"d = 6.3 lb/ft, 6"d = 14.1 lb/ft; Grout: 20% solids = 3.6 ft<sup>3</sup>/bag, 25% = 2.8 ft<sup>3</sup>/bag Sand: 2"d = 6.6 lb/ft, 4"d = 17.5 lb/ft, 6"d = 23.7 lb/ft</small>		Notes (i.e., grout emplacement [tremied, poured, tamped], water source): Dyed concrete to blend in	
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Material Type:	Quantity:																																																																		
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3/8" chips	1 bags																																																																		
3/4" chips	1 1/8 bags																																																																		
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Notes (i.e., grout emplacement [tremied, poured, tamped], water source): Dyed concrete to blend in																																																																			



Boring ID  
MW-11

Project Number  
603.002

Sheet 1 of 1

## SOIL BORING LOG

Project: Parcel 15 Investigation

Location: Tacoma, Washington

Drilling Contractor: Steadfast

Drilling Method: Geoprobe, 7822 DT

Start Date: May 10, 2016

End Date: May 10, 2016

Field Personnel: E Hughes, R Fowler

Sampling Method: Direct Push, MC-7 liner

Water Levels: ~12 ft bgs

Start Card No: L

WA ID:

Total Depth: 20 ft bgs

Depth Below Surface (ft)	Sample		Description  Soil Name, USCS Group Symbol, Color, Moisture, Relative Density/Consistency, Soil Structure, Mineralogy	Comments  Air Monitoring/PID Readings, Sheen/Odor, Issues Encountered, Water Levels
	Drive Interval/Recovery	Lab Sample Interval		
0	NS		0-1.25 RCC Cap	Concrete cored, ground surface from top of cap Organic odor Organic odor Top inch of core tube mangled by rock Water at 12', hard to get exact measurement due to slough.** Some slough may be present in analyzed sample TD = 20'  **Attempted to get accurate water level by clearing hole and using temporary screen. Unable to obtain measurement with meter.  Note: (A) Sample interval was submitted for laboratory analysis. All other sample intervals were submitted to the lab for frozen archival.
1.5	95%		1.5-3.7 Well Graded GRAVEL (GW), light gray, dry, loose, angular and 1/2 to 3"	
3.7			3.7-7.3 Slag Containing Fill with wood waste, dark brown, organic soil, trace gravel fill	
5			7.3-10 Poorly Graded SAND (SP), dark gray, moist, loose, fine grained, red and white lithics, some silty intervals (<1" thick)	
10		9-10	10-11.4 No Recovery	
11.4	72%		11.4-13 Slough, coarse gravel and slag	
15		13-14 (A)	14-15 Silty SAND (SM), dark gray, wet, medium dense, fine grained, some red and white lithics	
16.5		16.5-17.5	15-20 Silty SAND (SM), dark gray, wet, medium dense, very fine grained, some rounded green gravel and red and white lithics	
18.5	100%			
20		18.5-19.5		



Boring ID  
MW-11

Project Number  
603.002

## WELL CONSTRUCTION

Project: Parcel 15 Investigation	Location: Tacoma, Washington
Drilling Contractor: Steadfast	Drilling Method: Hollow Stem Auger
Start Date: May 11, 2016	End Date: May 11, 2016
Field Personnel: R Fowler	
TOC Elev (& datum):	GS Elev (& datum):
Static Water Levels:	OWRD ID:

Well Construction Drawing (below ground completion)	Well Construction Materials								
<p>(ground surface)</p> <p style="text-align: center;">NOT TO SCALE</p>	<p>Borehole TD (ft bgs): 22</p> <p>Well TD (ft bgs): 17</p> <p>Borehole Diameter: 8 inches to 16 ft bgs</p> <p>Borehole Diameter: inches to ft bgs</p> <p>Monument Type: flush mount</p> <p>Lockable Cap: no</p> <p>Monument Diam. (in):</p> <p>Bollards: no</p> <p>Well Casing Type: PVC</p> <p>Casing Diam. (in): 2</p> <p>Well Casing Interval: 0 to 7 ft bgs</p> <p>Screen Type: PVC</p> <p>Screen Length (ft): 10</p> <p>Screen Slot Size: 10 slot</p> <p>Screen Diameter (in): 2</p> <p>Screen Interval: 7 to 17 ft bgs</p> <p>Sump Type: none</p> <p>Sump Length: 3"</p> <p>End Cap Type: PVC</p> <p>End Cap Length: 2"</p> <p>Centralizer Type: none</p> <p>Centralizer Locations (ft bgs): --</p> <p>Backfill Material: 3/4 Bentonite Chips</p> <p>Backfill Interval: 18 to 22 ft bgs</p> <p>Filter Pack Material: 10/20 Colorado Silica Sand</p> <p>Filter Pack Interval: 6 to 18 ft bgs</p> <p>Filter Pack Seal Material:</p> <p>Filter Pack Seal Interval:</p> <p>Bentonite Seal Material: 3/8" hole plug</p> <p>Bentonite Seal Interval: 2 to 6 ft bgs</p> <p>Annular Seal Material:</p> <p>Annular Seal Interval:</p> <p>Surface Seal Material: Cement</p> <p>Surface Seal Interval: 0 to 2 ft bgs</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Material Type:</td> <td style="width: 40%;">Quantity:</td> </tr> <tr> <td>backfill chips</td> <td style="text-align: right;">1 bags</td> </tr> <tr> <td>Sand: 2"d = 6.6 lb/ft, 4"d = 17.5 lb/ft, €</td> <td style="text-align: right;">6.75 bags</td> </tr> <tr> <td>chips</td> <td style="text-align: right;">2 1/2 bags</td> </tr> </table> <p><small>Holeplug: 2"d = 1.6 lb/ft, 4"d = 6.3 lb/ft, 6"d = 14.1 lb/ft; Grout: 20% solids = 3.6 ft<sup>3</sup>/bag, 25% = 2.8 ft<sup>3</sup>/bag Sand: 2"d = 6.6 lb/ft, 4"d = 17.5 lb/ft, 6"d = 23.7 lb/ft</small></p> <p>Notes (i.e., grout emplacement [tremied, poured, tamped], water source): Accidentally overdrilled to 22', filled to 18' with bentonite chips</p>	Material Type:	Quantity:	backfill chips	1 bags	Sand: 2"d = 6.6 lb/ft, 4"d = 17.5 lb/ft, €	6.75 bags	chips	2 1/2 bags
Material Type:	Quantity:								
backfill chips	1 bags								
Sand: 2"d = 6.6 lb/ft, 4"d = 17.5 lb/ft, €	6.75 bags								
chips	2 1/2 bags								
bgs = below ground surface									



Boring ID  
MW-12

Project Number  
603.002

Sheet 1 of 1

## SOIL BORING LOG

Project: Parcel 15 Investigation

Location: Tacoma, Washington

Drilling Contractor: Steadfast

Drilling Method: Geoprobe, 7822 DT

Start Date: May 12, 2016

End Date: May 12, 2016

Field Personnel: E Hughes, R Fowler

Sampling Method: Direct Push, MC-7 liner

Water Levels: 10 ft bgs

Start Card No: L

WA ID:

Total Depth: 15 ft bgs

Depth Below Surface (ft)	Sample		Description  Soil Name, USCS Group Symbol, Color, Moisture, Relative Density/Consistency, Soil Structure, Mineralogy	Comments  Air Monitoring/PID Readings, Sheen/Odor, Issues Encountered, Water Levels
	Drive Interval/Recovery	Lab Sample Interval		
0			0-0.95 No Recovery	
1	81%	2-3	0.95-1.3 Top soil, light brown, very dry, grass debris, gravel 1/4 to 3" and subrounded to angular	
2			1.3-2 Poorly Graded SAND with gravel (SP), dark brown, fine grained with red & yellow lithics, gravel (40%)	
3		4-5	1/4 to 2" and subrounded to anuglar, wood waste	
4			6-7 3-3.6 Poorly Graded SAND (SP), dark gray, moist, loose, fine grained with red & yellow lithics	
5	86%	8-9	3.6-7.6 Sandy SILT (ML), dark gray, moist, soft, nonplastic poorly graded fine grained sand	Water level ~10', wet at bottom of 10' drive and 10-15' drive wet. Couldn't get accurate meter reading in hole
6			7.6-8 Silty CLAY (CL), dark gray, soft, low plasticity	
7		11.5-12.5 (A)	9-9.5 Sandy SILT (ML), dark gray, moist, soft, nonplastic poorly graded fine grained sand	
8	80%		9.5-10 SILT (ML)	
9			10-11 No Recovery	TD = 15'
10		14-15	11-14 Poorly Graded SAND (SP), dark gray, wet, loose, fine grained with red and white lithics, sand grades to medium grained by 13.5'	
11				
12				
13				
14				
15				

Note:  
(A) Sample interval was submitted for laboratory analysis. All other sample intervals were submitted to the lab for frozen archival.

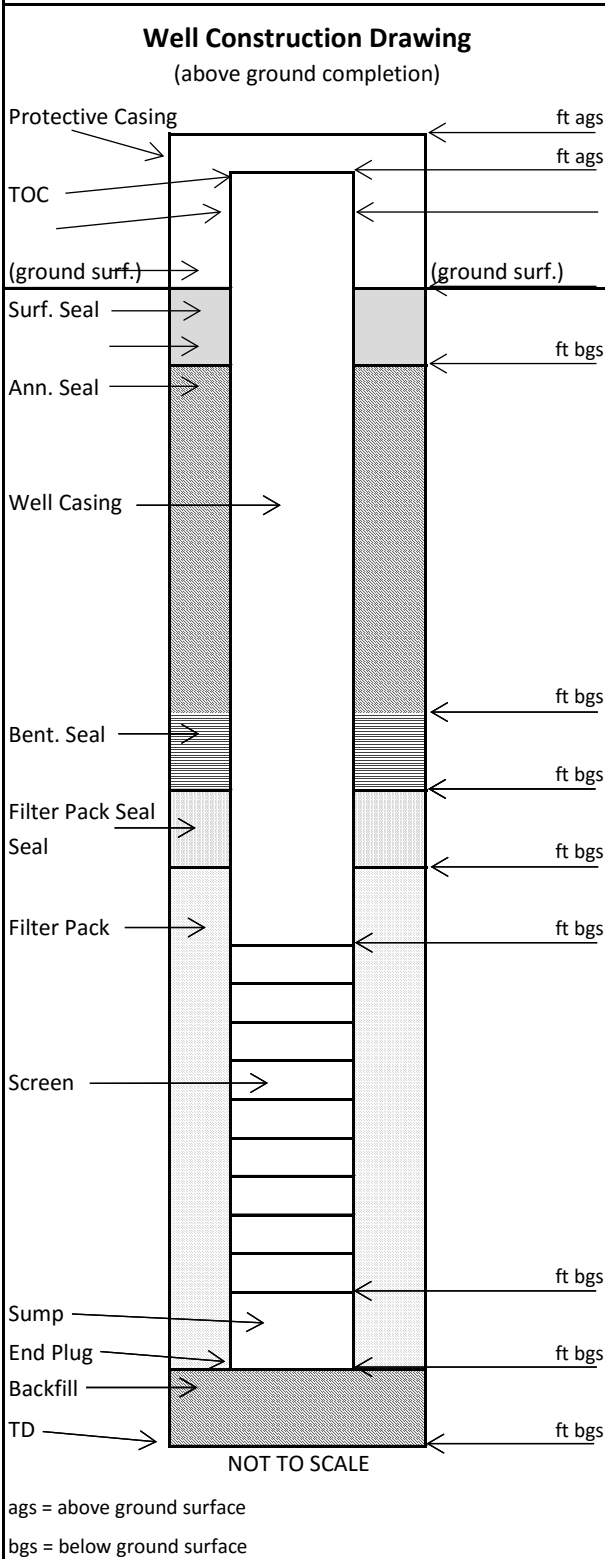


Boring ID  
MW-12

Project Number  
603.002

## WELL CONSTRUCTION

Project: Parcel 15 Investigation	Location: Tacoma, Washington
Drilling Contractor: Steadfast	Drilling Method: Auger
Start Date: May 12, 2016	End Date: May 12, 2016
Field Personnel: E. Hughes	
TOC Elev (& datum):	GS Elev (& datum):
Static Water Levels:	OWRD ID:



Well Construction Materials	
Borehole TD (ft bgs): 15'	Well TD (ft bgs): 15
Borehole Diameter: 8	inches to 15 ft bgs
Borehole Diameter:	inches to ft bgs
Protective Casing Type:	Lockable Cap: yes
Protective Casing Diam (in): 4	Bollards: yes
Well Casing Type: PVC	Casing Diam. (in): 2
Well Casing Interval: 0 to 5 ft bgs	
Screen Type: PVC	Screen Length (ft): 10
Screen Slot Size: 10 slot	Screen Diameter (in): 2
Screen Interval: 5 to 15 ft bgs	
Sump Type: none	Sump Length:
End Cap Type: PVC	End Cap Length: 2"
Centralizer Type: none	
Centralizer Locations (ft bgs): --	
Backfill Material:	
Backfill Interval:	
Filter Pack Material: 10/20 Colorado Silica Sand	
Filter Pack Interval: 4 to 15 ft bgs	
Filter Pack Seal Material:	
Filter Pack Seal Interval:	
Bentonite Seal Material: 3/8" hole plug	
Bentonite Seal Interval: 1.8 to 4 ft bgs	
Annular Seal Material:	
Annular Seal Interval:	
Surface Seal Material: Cement	
Surface Seal Interval: 0 to 1.8 ft bgs	
Material Type:	Quantity:
sand	6.5 bags
hole plug chips	<1 bags
<small>Holeplug: 2"d = 1.6 lb/ft, 4"d = 6.3 lb/ft, 6"d = 14.1 lb/ft; Grout: 20% solids = 3.6 ft<sup>3</sup>/bag, 25% = 2.8 ft<sup>3</sup>/bag  Sand: 2"d = 6.6 lb/ft, 4"d = 17.5 lb/ft, 6"d = 23.7 lb/ft</small>	
Notes (i.e., grout emplacement [tremied, poured, tamped], water source):	

















Boring ID  
TB-5

Project Number  
603.002

Sheet 1 of 1

## SOIL BORING LOG

Project: Parcel 15 Investigation

Location: Tacoma, Washington

Drilling Contractor: Steadfast

Drilling Method: Geoprobe, 7822 DT

Start Date: May 17, 2016

End Date: May 17, 2016

Field Personnel: E Hughes, R Fowler

Sampling Method: Direct Push, MC-7 liner

Water Levels: 16 ft bgs

Start Card No: L

WA ID:

Total Depth: 20 ft bgs

Depth Below Surface (ft)	Sample		Description  Soil Name, USCS Group Symbol, Color, Moisture, Relative Density/Consistency, Soil Structure, Mineralogy	Comments  Air Monitoring/PID Readings, Sheen/Odor, Issues Encountered, Water Levels
	Drive Interval/Recovery	Lab Sample Interval		
0	NS		0-1.0 RCC Cap	Concrete cored, ground surface from top of cap
1.3	94%		1.3-3.6 Well Graded GRAVEL (GW), gray green, 1/4 to 1/2" and angular to subrounded, silty sand matrix	
3.6			3.6-7.6 Slag Containing Fill, dark brown, moist, organic soil with woody debris, black slag (20%) 1/4 to 2" angular and shiny, 6" clean slag starting at 7.1'	
5	92%		7.6-9 Poorly Graded SAND with Silt (SP), dark gray, dry, loose, fine grained, red and black lithics, rootlets	
10		9-10	10-12.7 No Recovery	
15	46%		14-20 SILT (ML), dark gary, wet, soft, nonplastic	
13-14		13-14		
15-16	84%			Water level tagged at 16.5' but still coming up slowly, called 16' for sake of sampling  TD = 20'
17-18		17-18 (A)		
19-20		19-20		

Note:  
(A) Sample interval was submitted for laboratory analysis. All other sample intervals were submitted to the lab for frozen archival.





Boring ID  
TB-7

Project Number  
603.002

Sheet 1 of 1

## SOIL BORING LOG

Project: Parcel 15 Investigation      Location: Tacoma, Washington

Drilling Contractor: Steadfast      Drilling Method: Geoprobe, 7822 DT

Start Date: May 17, 2016      End Date: May 17, 2016      Field Personnel: E Hughes, R Fowler

Sampling Method: Direct Push, MC-7 liner      Water Levels: 15.5 ft bgs

Start Card No: L      WA ID:      Total Depth: 20 ft bgs

Depth Below Surface (ft)	Sample		Description  Soil Name, USCS Group Symbol, Color, Moisture, Relative Density/Consistency, Soil Structure, Mineralogy	Comments  Air Monitoring/PID Readings, Sheen/Odor, Issues Encountered, Water Levels
	Drive Interval/Recovery	Lab Sample Interval		
0	NS		0-1 RCC Cap	Concrete cored, ground surface from top of cap
1			~1-2.8 No Recovery	
2	~85%		2.8-3.6 Well Graded GRAVEL (GW), gray green, dry, 1/4 to 3" angular to subrounded, silty sand matrix	
3			3.6-6 Slag Containing Fill, dark brown, moist, organic soil with red woody debris, black glassy slag (20%)	
4			6-7 Clean slag	
5	86%	9-10	7-10 Poorly Graded SAND (SP), dark gray, moist, loose, red and white lithics, 1" silt lens at 9' with yellow mottling	
6			10-11.3 No Recovery	
7			11.3-13.5 SILT (ML), dark gray, wet, soft	
8	76%	13.5-14.5	14.5-15 Poorly Graded SAND (SP), dark gray, wet, loose, red and white lithics	
9			15-16.2 No Recovery	
10			16.2-16.5 SILT (ML), dark gray, wet, soft	Wet at base at 10-15' drive but didn't tag water
11	76%	16.5-17.5 (A)	17.5-19 Poorly Graded SAND (SP), dark gray, loose, red and white lithics	
12		19-20		
13				TD = 20'
14				
15				
16				
17				
18				
19				
20				

Note:  
(A) Sample interval was submitted for laboratory analysis. All other sample intervals were submitted to the lab for frozen archival.





Boring ID  
TB-8

Project Number  
603.002

Sheet 1 of 1

## SOIL BORING LOG

Project: Parcel 15 Investigation

Location: Tacoma, Washington

Drilling Contractor: Steadfast

Drilling Method: Geoprobe, 7822 DT

Start Date: May 13, 2016

End Date: May 13, 2016

Field Personnel: E Hughes, R Fowler

Sampling Method: Direct Push, MC-7 liner

Water Levels: 12 ft bgs

Start Card No: L

WA ID:

Total Depth: 20 ft bgs

Depth Below Surface (ft)	Sample		Description  Soil Name, USCS Group Symbol, Color, Moisture, Relative Density/Consistency, Soil Structure, Mineralogy	Comments  Air Monitoring/PID Readings, Sheen/Odor, Issues Encountered, Water Levels
	Drive Interval/Recovery	Lab Sample Interval		
0	NS		0-1.55 RCC Cap	Concrete cored, ground surface from top of cap
1.7	97%		1.7-3.8 Well Graded GRAVEL (GW), gray green, dry, 1/4 to 2" angular to subrounded, silty sand matrix	
3.8			3.8-6.1 Slag Containing Fill, dark brown, moist, organic soil with woody debris, wood is red, natural and black, black glassy slag (20%) 1/2 to 3" angular to subrounded and vesicular	Slight organic odor at 6.1-9.5'
6.1	86%		6.1-9.5 Poorly Graded SAND with Silt (SP), dark gray, dry, loose, fine grained, red and white lithics	
9.5		9-10	9.5-10 SILT (ML), dark gray, moist, soft, trace sand with red and white lithics	Water level at 12'
10.1	76%		10-11.5 Slough, gravel and slag containing fill	
11.5		13.5-14.5	11.5-15 CLAY with Silt (CL), wet, soft, medium plasticity 1" layer black peaty wood at 15' bgs	Slight organic odor at 11.5-15'
15.5	76%		15-20 SILT with Clay (ML), dark gray, wet, soft, low plasticity, moderate dilatancy, trace sand	
16.5		16.5-17.5 (A)		TD = 20'
19		19-20		
Screen at 12-17' for grab groundwater sample				
<p>Note: (A) Sample interval was submitted for laboratory analysis. All other sample intervals were submitted to the lab for frozen archival.</p>				



Boring ID

TB-9

Project Number

603.002

Sheet 1 of 1

## SOIL BORING LOG

Project: Parcel 15 Investigation

Location: Tacoma, Washington

Drilling Contractor: Steadfast

Drilling Method: Geoprobe, 7822 DT

Start Date: May 13, 2016

End Date: May 13, 2016

Field Personnel: E Hughes, R Fowler

Sampling Method: Direct Push, MC-7 liner

Water Levels: 11 ft bgs

Start Card No: L

WA ID:

Total Depth: 20 ft bgs

Depth Below Surface (ft)	Sample		Description  Soil Name, USCS Group Symbol, Color, Moisture, Relative Density/Consistency, Soil Structure, Mineralogy	Comments  Air Monitoring/PID Readings, Sheen/Odor, Issues Encountered, Water Levels
	Drive Interval/Recovery	Lab Sample Interval		
0	NS		0-0.4 Asphalt	Asphalt cored, ground surface from top of asphalt
0.85	91%	2.4-3.4	0.85-1.5 Well Graded GRAVEL (GW), light brown, dry, loose, 1/4 to 1/2" angular to subrounded, silty sand matrix	
1.5			1.5-2 Well Graded GRAVEL (GW), dark gray/black, dry, loose, 1/4 to 1/2" angular to subrounded, silty matrix	
2		7.4-8.4	2-2.4 Well Graded GRAVEL with Sand (GW), light brown, 1/4 to 3" subangular to subrounded, sand is fine to medium grained; changes to dark brown @2.4'	
3		8.8-9.8	3.4-5 Poorly Graded SAND (SP), dark brown/red, dry, loose, medium grained, rootlets	
4	72%	12-13 (A)	5-5.5 Slough	
5		13-14	5.5-7.4 Poorly Graded SAND (SP), dark gray, loose, fine grained	@7.4' Apparent boundary
6		16-17	7.4 CLAY with Sand (CL), gray purple with reddish brown clasts, sand is medium grained	between hydraulic fill (SP) and underlying clay (CL) and sandy silt (ML) bank deposits.
7			8.4-8.8 Sandy SILT (ML), dark brown, moist, soft, low to medium plasticity, sand is very fine grained, red staining, trace clay	TD = 20'
8		19-20	9.8-10 Silty CLAY (CL), reddish brown, red staining, decomposed wood	
9			10-11.4 No Recovery	
10			11.4-12 Well Graded SAND (SW), reddish brown, moist, loose, fine to coarse grained and predominately medium grained, black, yellow, white and red lithics, red staining	@12' Apparent boundary between native sands (SW) and potential bank deposits (CL)
11			13-14 CLAY with Silt (CL), black	
12			14'20 Well Graded SAND (SW), dark gray/black, wet, loose, fine to coarse grained, black red, green, white, and gray lithics	Note: (A) Sample interval was submitted for laboratory analysis. All other sample intervals were submitted to the lab for frozen archival.



Boring ID

TP-1

Project Number

603.002

Sheet 1 of 1

### TEST PIT DESCRIPTION

Project: Parcel 15 Investigation

Location: Tacoma, Washington

Drilling Contractor: Steadfast

Drilling Method: Mini-Excavator, Direct Push

Start Date: May 17, 2016

End Date: May 18, 2016

Field Personnel: S Kuhlmeier, E Hughes

Sampling Method: Manual grab samples

Water Levels: ~11 ft bgs

Start Card No: N/A

WA ID: N/A

Total Depth: 13

Depth Below Surface (ft)	Lab Sample Interval(s)	Test Pit Description (e.g., extent of excavation, subsurface material, etc.)	Other comments (e.g., Sheen/Odor, Issues Encountered, Water Levels)
	0.5-1.5 ft bgs (TPS001-0.5-1.5; in native material, 3' -5' north of excavation boundary)	Fill/native material interchange observed in shallow excavation. Coordinates plotted on figure. Excavated test pit to approximately 2.5' bgs for approximate dimensions of 20' long x 3' wide x 2.5' deep.	Fill Material in excavation material is:
5	1.5-2.5F ft bgs (TPS001F-1.5-2.5; in fill material, at excavation boundary; submitted for archival at lab)	Subsurface Material within Excavation: 0-6" Asphalt to subgrade cobble and sand (light grey) 6" to 1.' Well graded SAND (SW) with gravel, reddish brown sand, fine to coarse grained sand, gravel is subrounded and variable in color, dry 1-2.5' Sandy Silt (ML), dark gray, soft non plastic silt with medium grained sand and some gravel/cobbles, moist	Well graded SAND (SW), green grey, dry, fine to coarse grained, angular, with gravel (~30%)
10	12 - 13 ft bgs (TPS001TB-12-13; collected native material with direct push)	12-13' bgs: Poorly graded sand (SP), dark gray, wet, loose, fine-grained w/red/black lithics	Wet at approximately 10.5 ft bgs at MW-2R

