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Interim Action System As-Built and Startup Report

Former Northwest Plating Site
825 South Dakota Street and 812 and 820 South Adams Street
Seattle, Washington
(Facility No. 2231, VCP No. NW2769)

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TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Background 1
1.2 Interim Action Objectives 2
2.0 PERMITTING 2
2.1 Air Discharge Permit Evaluation 2
2.2 Additional Permitting Evaluations 3
3.0 SVE AND ERD SYSTEM INSTALLATION 4
3.1 SVE System 1 4
3.1.1 System Well Construction 4
3.1.2 ERD Injection Well Construction 4
3.1.3 SVE Trenching and Piping 4
3.1.3.1 Trench Construction 4
3.1.3.2 System Piping Installation 5
3.1.4 Remediation System Equipment Installation 5
3.1.4.1 System Components 6
3.1.4.2 System Connections and Discharge Piping 6
3.1.4.3 Electrical Components and Installation 7
3.1.4.4 System Controls and Alarms 7
3.1.5 Waste Management 8
3.1.6 Site Restoration 8
3.2 SVE System 2 9
3.2.1 System Well Construction 9
3.2.2 ERD Injection Well Construction 9
3.2.3 SVE Trenching and Piping 9
3.2.3.1 Trench Construction 9
3.2.3.2 System Piping Installation 10
3.2.4 Remediation System Equipment Installation 10
3.2.4.1 System Components 11
3.2.4.2 System Connections and Discharge Piping 11
3.2.4.3 Electrical Components and Installation 11
3.2.4.4 System Controls and Alarms 12
3.2.5 Waste Management 12
3.2.6 Site Restoration 13
4.0 ERD INJECTIONS 13

4.1 ERD Design 13
4.2 Aquifer Bioaugmentation 14
4.3 ERD Application 14
5.0 SVE SYSTEM STARTUP 15
5.1 SVE System 1 Startup Testing 15
5.1.1 Initial System Monitoring 16
5.2 SVE System 2 Startup Testing 17
5.2.1 Initial System Monitoring 17
6.0 SYSTEM OPERATION AND MAINTENANCE 18
7.0 REPORTING 18
8.0 LIMITATIONS 19

TABLES

Table 1 System 1 SVE Well Monitoring Data
Table 2 System 1 SVE System Operation Summary
Table 3 System 2 SVE Well Monitoring Data
Table 4 System 2 SVE System Operation Summary

FIGURES

Figure 1 General Vicinity Map
Figure 2 Site Representation
Figure 3 ERD and SVE System 1 Wells and Piping Layout
Figure 4 ERD Injection Well Construction Details
Figure 5 Schematic of System 1 SVE Piping and Trench Details
Figure 6 SVE Treatment System Process and Instrumentation Diagram
Figure 7 ERD and SVE System 2 Wells and Piping Layout
Figure 8 Schematic of System 2 SVE Piping and Trench Details

ATTACHMENTS

Attachment A Air Discharge General Registration Questionnaire
Attachment B Soil Boring Logs and System Well Construction Details
Attachment C Vendor-Supplied O&M Manual
Attachment D Laboratory Analytical Data – Waste Material
Attachment E Waste Disposal Documents
Attachment F Laboratory Analytical Data – System Vapor Samples
Attachment G SVE System O&M Field Sheet

ABBREVIATIONS AND ACRONYMS

Abbreviation/ Acronym	Definition
bgs	Below ground surface
Cr	Chromium
CrVI	Hexavalent chromium
CUL	Cleanup level
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
EPI	Environmental Partners, Inc.
ERD	Enhanced reductive dechlorination
EVO	Emulsified vegetable oil
Evoqua	Evoqua Water Technologies, LLC
GAC	Granular activated carbon
GeoTech	GeoTech Environmental Equipment, Inc.
Glacier	Glacier Environmental
Holocene	Holocene Drilling, Inc.
hVOCs	Halogenated volatile organic compounds
IAWP	Interim Action Work Plan
Inches w.c.	Inches of water column
IO	IO Environmental and Infrastructure Inc.
L&I	Washington State Department of Labor and Industries
µg/L	Micrograms per liter
mg/kg	Milligrams per kilogram
MTCA	Model Toxics Control Act
NEMA	National Electrical Manufacturer's Association
NOC	Notice of Construction
O&M	Operations and maintenance
ORP	Oxidation-reduction potential
P&ID	As-Built Process and Instrumentation Diagram
PID	Photoionization detector
ppmv	Parts per million by volume
PSCAA	Puget Sound Clean Air Agency
psi	Pounds per square inch
PVC	Polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
REL	Remediation level
RI	Remedial investigation
RNAS	RNAS Remediation Products, Inc.
scfm	Standard cubic foot per minute
SHJ	SHJ Electric Co., Inc.
SVE	Soil vapor extraction
TCE	Trichloroethene
TOC	Total organic carbon

Abbreviation/ Acronym	Definition
VCP	Voluntary Cleanup Program
VOCs	Volatile organic compounds
WAC	Washington Administrative Code
WIERT	Washington Industries Environmental Remediation Trust
WII Property	Washington Industries, Inc. Property

1.0 INTRODUCTION

Environmental Partners, Inc. (EPI) is pleased to present this *Interim Action System As-Built and Startup Report* (As-Built Report) documenting interim remedial actions undertaken at the Former Northwest Plating Site located at 812 and 820 South Adams Street and 825 South Dakota Street in Seattle, Washington (the Site). The location of the Site is depicted on Figure 1.

The Former Northwest Plating Facility is located on the current Washington Industries, Inc. (WII) Property. The Washington Industries Environmental Remediation Trust (WIERT) is undertaking the environmental response actions documented herein. The Site is currently enrolled in the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) as Site No. NW2796 and Ms. Heather Vick is the Ecology Site Manager.

A *Remedial Investigation Report* (RI Report) for the Site dated June 26, 2016 was submitted to Ecology for review under the VCP. An Interim Action Work Plan (IAWP) dated April 18, 2016 was also submitted to Ecology for review. That work plan discussed the installation of a soil vapor extraction (SVE) system to address residual soil impacts, and the use of enhanced reductive dechlorination (ERD) as a primary method of groundwater remediation. WIERT and EPI are currently awaiting Ecology comments on both the RI and the IAWP.

For the purposes of the RI, the maximum lateral and vertical extents of the Site are characterized as the maximum extent of trichloroethene (TCE) in groundwater at a concentration exceeding 8.4 micrograms/liter (µg/L). This Site characterization complies with the Model Toxics Control Act (70.105D RCW) and its implementing regulations (Washington Administrative Code [WAC] 173-340; collectively "MTCA"). The reviewer is referred to the RI Report for additional detail regarding the characterization and definition of the MTCA-defined Site.

This As-Built Report documents the installation and startup of two SVE systems and the use of ERD for the treatment of soil and groundwater contaminants. For ease of understanding, this report refers to the two SVE systems as "SVE System 1" and "SVE System 2." The design basis for the SVE System 1 and the ERD design parameters was presented in the IAWP. The design basis for SVE System 1 was also used for SVE System 2. A description of the ERD well construction and injection activities and the system construction, startup activities, and associated monitoring is provided herein.

1.1 Background

The Site is located approximately 3 miles south of downtown Seattle along the eastern margin of the lower Duwamish River industrial area. The Site consists of (1) the WII Property at 825 South Dakota Street, (2) the southern adjacent property (Perine Property) located at 812 and 820 South Adams Street, and (3) the western adjacent property located at 4114 Airport Way South. The Site also extends into the South Dakota Street right-of-way and may marginally impact properties to the north of South Dakota Street. Figure 2 presents the lateral extent of the Site.

Soil and groundwater at the Site are affected by releases of TCE and related volatile organic compounds (VOCs) as well as total chromium (Cr) and hexavalent chromium (CrVI). Those impacts are present as a result of historical electroplating activities at the former Northwest Plating facility. The RI Report prepared for the Site presents a detailed description of the Site history as well as development of a conceptual site model (CSM), development of cleanup levels (CULs) and remediation levels (RELs), and the identification of the distribution of contamination in soil and groundwater at the Site and WII Property. The reviewer is referred to the RI Report for a detailed discussion of Site conditions.

1.2 Interim Action Objectives

As identified in the RI Report, the primary exposure pathways at the Site are the potential for vapor intrusion from soil and groundwater to indoor air by TCE and its related environmental degradation products. The RI Report also identified the primary area of VOC release(s) on the WII Property and within the former Northwest Plating Facility operations building. There is an area of high TCE concentrations in soil (Figure 3) and elevated TCE concentrations in groundwater extending hydraulically downgradient from that area. Soil gas is impacted with concentrations of TCE in locations adjacent to this source area and in areas above the dissolved-phase contaminant plume. The general objective of the Interim Action was to significantly lessen the potential for exposure via the indoor air pathway. The specific objectives of the Interim Action are:

- To remove the mass of TCE and related VOCs within the vadose zone within the source area of the Site;
- To control vapor migration to the south onto the adjacent Perine Property; and
- To decrease the contaminant mass in groundwater within and near the source zone, thereby lessening the potential effects of vapor intrusion from volatilization from groundwater.

2.0 PERMITTING

The following sections describe the permitting requirements for implementing the SVE system and ERD treatment.

2.1 Air Discharge Permit Evaluation

The discharge of treated vapors from the SVE systems is potentially subject to air permitting requirements of the Puget Sound Clean Air Agency (PSCAA). Under PSCAA regulations, annual emission of uncontrolled vapors exceeding PSCAA's allowable discharge limit of 1,000 pounds of toxic air contaminants must be permitted.

EPI evaluated the potential for the SVE systems to exceed the PSCAA threshold criterion using worst-case soil gas data for the Site and a 90 standard cubic feet per minute (scfm) operational flow rate. The results of the evaluation demonstrate that neither of the SVE systems would be expected to discharge more than 1,000 pounds per year of "toxic air contaminants," which is the threshold for requiring a Notice of Construction (NOC) air operating permit from the PSCAA. This conclusion is confirmed by the volume

of soil within the source area and the observed VOC concentrations in soil. The approximate source area of 60 feet by 30 feet by 3 feet deep represents approximately 517,000 pounds of contaminated soil. Applying the maximum detected TCE concentration of 760 milligrams per kilogram (mg/kg) to this amount of contaminated soil results in a total TCE contaminant mass of about 390 pounds. Therefore, even considering any reasonable uncertainty in this calculation, it is highly improbable that this amount of contaminant mass would result in discharges totaling more than 1,000 pounds per year.

If field data indicate that the SVE systems can recover higher contaminant loadings than currently anticipated, the vacuum flow rates may be adjusted accordingly. If those increased loadings are likely to exceed the 1,000 pounds per year threshold for requiring a NOC, then the systems will be operated at the lower flow rate while a PSCAA permit is being completed and processed.

While a PSCAA NOC permit is not required based upon the contaminant mass present and the permissible annual threshold for TCE emissions, EPI submitted a General Registration Questionnaire for each system, as required by PSCAA. Copies of those questionnaires are provided as Attachment A.

2.2 Additional Permitting Evaluations

A permit was not required for the ERD injections. The injected substrate is not an environmental contaminant or waste and does not have Washington State CULs or either a Federal Maximum Contaminant Level (MCL), a Secondary Maximum Contaminant Level (SMCL), or a Maximum Contaminant Level Goal (MCLG). Therefore, a permit from the Washington State Underground Injection Coordinator (UIC) was not required.

All normal notifications for well installation were performed by the well driller as required under WAC 173-160.

Electrical permitting was not required for the installation of the SVE systems; however, a licensed electrician was engaged to re-establish power to the facility to power the SVE blowers and appurtenances.

The compounds of concern at the Site are not flammable nor combustible and no National Fire Code permits or regulations applied to this Interim Action.

The Washington Department of Labor and Industries (L&I) did not require permits for the work. All applicable health and safety requirements for this Interim Action were met.

No other permits applied to the current Interim Action activities.

3.0 SVE AND ERD SYSTEM INSTALLATION

3.1 SVE System 1

The interim remediation installation activities for SVE System 1 were substantially completed between June 20, 2016 and August 2, 2016. Drilling and construction activities were overseen by an EPI representative and were completed in general accordance with the IAWP. Holocene Drilling, Inc. (Holocene) of Puyallup, Washington, provided drilling and well installation services, and IO Environmental & Infrastructure Inc. (IO) of Redmond, Washington, provided system construction and piping installation services. GeoTech Environmental Equipment, Inc. (GeoTech) of Denver, Colorado, constructed and delivered the remediation system and enclosure. The following sections describe procedures and considerations associated with construction and installation of SVE System 1.

3.1.1 System Well Construction

A total of six ERD injection wells (IJ-1 through IJ-6) and seven SVE wells (SVE-1 through SVE-7) were installed for the initial interim action system operation. The ERD wells were installed using hollow-stem auger drilling techniques in accordance with the design criteria detailed in the IAWP. Drilling services were performed by Holocene from June 20 through June 21, 2016, under the direct supervision of EPI field personnel. The as-built locations of the ERD and SVE system wells are shown on Figure 3. ERD well construction details are provided on Figure 4. SVE well construction details are provided on Figures 3 and 5. Soil boring logs for the ERD wells are included as Attachment B.

3.1.2 ERD Injection Well Construction

The ERD injection wells were installed through the vadose zone to a vertical depth of approximately 15 feet below ground surface (bgs). This depth corresponds with the bottom of the shallow aquifer zone at the Site. The ERD wells were installed using an 8.25-inch diameter drilling casing advanced to the planned depth of 15 feet. The SVE wells were constructed of 4-inch diameter Schedule 40 polyvinyl chloride (PVC) pipe with a 10-foot length of 0.020-inch slotted screen installed at the bottom of the wells. The ERD well construction details are provided on Figure 4. A discussion of the ERD injections is provided in Section 4.0, below.

3.1.3 SVE Trenching and Piping

Shallow trenches were excavated for the installation of buried conveyance piping for the SVE system. This work was performed by IO and included installing piping and fittings to connect the SVE equipment to the system wells in accordance with the IAWP. The system trenching layout is shown on Figure 3. Figure 5 provides system trenching and piping construction details.

3.1.3.1 Trench Construction

Prior to trenching, the existing concrete flooring was saw-cut along the trench perimeter. A main trench, approximately 2 to 3 feet in width, was excavated northwest from the treatment skid toward the western extent of the remedial area. A second main trench, approximately 2 to 3 feet in width, was excavated

along the southern extent of the remedial area. Individual SVE well trenches, approximately 1.5 to 2 feet in width, were excavated off the main trenches to place the SVE wells and conveyance piping. The piping trenches extended no deeper than 3.5 feet bgs.

Most areas of trenching were excavated using a backhoe. In areas where footings or monitoring wells were present, trenches were excavated by hand. Once the trenches were excavated to the planned depth, clean sand was placed in the bottom of the trenches to provide uniform bearing and support for the system conveyance piping. Following installation of the conveyance piping and/or SVE wells, trenches were backfilled with approximately 18 inches of clean ¾-inch minus gravel. Filter fabric (MIRAFI fabric) was installed above clean fill material creating a barrier between clean fill material and the previously excavated impacted fill material that was used to backfill the trenches. The impacted fill material was then placed in the remainder of open trench to surface. A 10-MIL PVC vapor liner was installed, covering conveyance piping and SVE trench areas.

3.1.3.2 System Piping Installation

Underground piping and connections were installed to connect the SVE system wells to the aboveground treatment system equipment. Each 4-inch diameter SVE well was connected to individual 2-inch diameter Schedule 40 PVC soil vapor conveyance piping as shown on Figure 5. Connections at the SVE wells were made in the center of the screened interval using tee fittings to evenly distribute the vacuum along the length of the well screen. Where piping transitioned from horizontal flow to vertical flow at the SVE manifold, short sections of PVC pipe were installed below ground using tees to allow for the removal of condensate at the lowest point of the piping, if necessary. The sumps are completed with threaded caps above the ground surface that may be removed for pumping water.

The aboveground SVE manifold is constructed of 2-inch diameter Schedule 40 PVC pipe, rubber Fernco couplings, 2-inch gate valves, and other fittings. The manifold is constructed to allow an operator to measure and adjust flows and vacuums from each well, collect samples from individual SVE wells, and to measure the total combined flow and vacuum conditions from all wells at the manifold header.

Prior to backfilling and final installation, all new SVE conveyance pipes were pressure-tested by the system installation contractor under supervision of the EPI field engineer. Pressure testing was performed on August 1, 2016. All SVE piping was tested with compressed air at 3 pounds per square inch (psi) and held for 30 minutes. Where testing indicated leakage or other defects, the faulty piping and/or connections were inspected and repaired or replaced and subsequently retested until pressure was successfully held for 30 minutes.

3.1.4 Remediation System Equipment Installation

Installation of the system equipment was performed during and following the trenching and piping installation activities. The remediation system equipment was supplied by GeoTech. Two vapor-phase granular activated carbon (GAC) vessels were supplied by Evoqua Water Technologies, LLC (Evoqua). The IO personnel prepared the area for installation of the system equipment. Electrical work was completed by SHJ Electric Co., Inc. (SHJ).

3.1.4.1 System Components

The SVE system unit and equipment was delivered to the Site on August 23, 2016. Upon delivery, the unit and equipment were installed on the existing concrete foundation. The system components include the following:

- Skid-mounted 10-horsepower regenerative vacuum extraction blower;
- Moisture knockout tank;
- National Electrical Manufacturer's Association (NEMA) 4 motor starter controller;
- Two 400-pound vapor-phase GAC vessels (for vapor treatment); and
- Associated filters, valves, sampling ports, gauges, and electrical controls.

The equipment skid was placed inside a locking steel-framed enclosure to reduce the likelihood of theft or damage due to trespassers. Equipment specifications and connection details are identified in the Process and Instrumentation Diagram (P&ID) illustrated on Figure 6. A complete list of system components and technical specification sheets is provided in Attachment C.

3.1.4.2 System Connections and Discharge Piping

Following installation of the remediation system skid, final piping connections were made to the equipment. This included completing the SVE piping manifolds and plumbing the vapor discharge conveyances. Completing the SVE manifold consisted of connecting 2-inch diameter Schedule 40 PVC pipe to the 2-inch galvanized steel pipe connected to the daylighted conveyance lines from the wells. System piping and connections for skid-mounted SVE components were installed by GeoTech prior to shipment to the Site.

For routing system vapors through the treatment equipment, flexible 3-inch diameter thermoplastic rubber hose was connected from the SVE blower discharge piping to the inlet of the primary vapor-phase GAC vessel, to between the primary and secondary vapor-phase GAC vessels, then to a 4-inch diameter Schedule 40 PVC vapor exhaust stack that is vented through the roof of the building. The piping for the exhaust stack was secured at the interior south wall of the building near the southeast corner, then transitioned through the roof to the building exterior. A vent cap was installed at the top of the exhaust stack to prevent precipitation from entering the stack.

Accumulated condensate is contained in a 38-gallon moisture knockout tank mounted on the system skid. The knockout tank is equipped with a high-liquid-level shutoff alarm that shuts down the blower when the moisture separator is full to protect the blower from flooding.

3.1.4.3 Electrical Components and Installation

A 200-ampere, 230-volt, 3-phase electrical service, provided by Seattle City Light, was installed at the Site for operation of the treatment system. To provide the system power, Main Street Electric installed a dedicated meter box on the southeastern exterior wall of the former Northwest Plating building. Seattle City Light installed a temporary service line from a utility pole located northeast of the former Northwest Plating building and connected power to the new meter. Main Street Electric then connected a 200-ampere distribution panel to the meter.

The electrical service was installed with a disconnect panel adjacent to the new meter and then terminated at the distribution panel located in the main room of the former Northwest Plating building. Conduit was then installed from the main distribution panel to a circuit breaker panel located within the building on the south interior wall of the main room. The circuit breaker panel distributes power to the system's electrical control panel and to newly installed electrical outlets and interior lights. The main distribution panel located on the interior of the building is rated NEMA 4 and is Underwriter Laboratories (UL) listed. The interior electrical and control panels are rated NEMA 4 and are also UL listed. All electrical wiring conforms to applicable laws, ordinances, building and construction codes, rules, and regulations. All electrical connections and conduit runs were inspected by an L&I official following installation. Main Street Electric was responsible for all electrical permits and inspections.

SHJ installed wiring from the breaker panel to the treatment system control panel, which is mounted on the equipment skid. Electrical wiring and control diagrams for the system are provided in the vendor-supplied operations and maintenance manual presented in Attachment C.

3.1.4.4 System Controls and Alarms

Manual system control valves and instrumentation were installed on the SVE piping manifolds and equipment to control and monitor SVE flow rates and vacuums. Other switches and controls were installed on the system components for equipment protection, and monitoring and controlling system vacuums and temperatures. A schematic of the controls and instrumentation is included on the P&ID on Figure 6.

Condensate accumulation within the moisture separator is monitored with a high-level alarm switch that shuts down the SVE system if the accumulated condensate rises above the maximum allowable level in the moisture separator.

The system's electrical control panel includes an "ON/OFF" switch for operating the SVE blower. The panel also includes variable frequency drives for controlling and monitoring the compressor and blower motors, and indicator lights for showing the following various alarm conditions when the system shuts down automatically:

- High water level in the moisture separator;
- High temperature at the SVE blower; and
- High vacuum at the SVE inlet.

The telemetry module (Sensaphone® Cell682) installed at the control panel monitors operational status of the SVE system as well as alarm status for each of the conditions indicated above. The module utilizes a local cellular service for remotely accessing this information via the internet. When the SVE system shuts down and an alarm condition occurs, the telemetry module has been programmed to alert operation and maintenance personnel via an auto-dialer. Additional information about the system control panel and telemetry module is provided in Attachment C.

3.1.5 Waste Management

Construction debris, previously excavated soil, and soil cuttings from installation of the ERD injection wells were removed from the Site and transported to appropriate disposal facilities. Wastes containing halogenated VOCs (hVOCs) and/or MTCA metals were characterized, handled, and disposed in accordance with the requirements of the Dangerous Waste Regulations (WAC 173-303). The wastes generated from the drilling activities were profiled using data collected during installation of adjacent monitoring wells. Concrete wastes generated during construction were profiled using data collected from six concrete samples composited into two samples submitted for laboratory analysis. These samples were collected on July 1, 2016 and submitted to ALS Environmental Laboratory (ALS) in Everett, Washington, for chemical analysis. The samples were analyzed for Resource Conservation and Recovery Act (RCRA) metals plus copper, nickel, and zinc using U.S. Environmental Protection Agency (EPA) Method 6020/7471.

In addition to the concrete debris, EPI collected waste characterization samples from an on-Site stockpile of previously-excavated soil. The soil stockpile was profiled using data collected from a soil sample collected on April 14, 2016 and submitted to ALS for analysis of hVOCs using EPA Method 8260 and RCRA metals plus copper, nickel, and zinc using EPA Method 6020/7471. Copies of the analytical reports for these waste profiling samples are provided in Attachment D.

The concrete debris and stockpiled soil were transported and disposed of as RCRA-regulated waste at Waste Management's Subtitle C landfill located in Arlington, Oregon. Copies of the disposal documentation for these wastes are provided in Attachment E.

Soils excavated from the system piping trenches were managed separately. Excavated trench soils were stockpiled on a liner within the former Northwest Plating facility until system construction was complete. Once the SVE system had been pressure tested and construction was completed, the excavated soils were used to partially backfill the trench excavations. These soils were placed in the upper portion of the trenches, above the MIRAFI fabric to bring the trenches up to grade. Excess trench soils were placed within the perimeter of the interim action area and ultimately, under the SVE liner to be treated by the SVE system.

3.1.6 Site Restoration

Following completion of all trench backfilling and pipe connections, the remaining trench spoils were spread within the perimeter of the treatment area to smooth areas around curbing and column footings. The perimeter floor surrounding the treatment area was power washed and smoothed using newly mixed concrete. A 10-millimeter PVC liner was then placed over the SVE trenches and sealed to the

surrounding floor with an adhesive. The PVC liner serves as a barrier to prevent the SVE wells from drawing in ambient air from above ground.

3.2 SVE System 2

The remediation system installation activities for SVE System 2 were substantially completed between July 17, 2017 and November 21, 2017. Drilling and construction activities were overseen by an EPI representative. Holocene provided drilling and well installation services, and Glacier Environmental (Glacier) of Lynnwood, Washington, provided system construction and piping installation services. GeoTech constructed and delivered the remediation system and enclosure. The following sections describe procedures and considerations associated with construction and installation of SVE System 2.

3.2.1 System Well Construction

A total of nine ERD injection (IJ-7 through IJ-15) wells and six SVE wells (SVE-8 through SVE-13) were installed for the second interim action system operation. The ERD wells were installed using hollow-stem auger drilling techniques in accordance with the design criteria detailed in the IAWP. Drilling services were performed by Holocene from July 17 through July 18, 2017, under the direct supervision of EPI field personnel. The as-built locations of the ERD and SVE system wells are shown on Figure 7. ERD well construction details are provided on Figure 4. SVE well construction details are provided on Figure 7 and Figure 8. Soil boring logs for the ERD wells are included as Attachment B.

3.2.2 ERD Injection Well Construction

The ERD injection wells were installed through the vadose zone to a vertical depth of approximately 15 feet bgs. This depth corresponds with the bottom of the shallow aquifer zone at the Site. The ERD wells were installed using an 8.25-inch diameter drilling casing advanced to the planned depth of 12 to 14 feet bgs. The SVE wells were constructed of 4-inch diameter Schedule 40 PVC pipe with a 10-foot length of 0.020-inch slotted screen installed at the bottom of the wells. The ERD well construction details are provided on Figure 4. A discussion of the ERD injections is provided in Section 4.0, below.

3.2.3 SVE Trenching and Piping

Shallow trenches were excavated for the installation of buried conveyance piping for the SVE system. This work was performed by Glacier and included installing piping and fittings to connect the SVE equipment to the system wells in accordance with the construction plans. The system trenching layout is shown on Figure 7. Figure 8 provides system trenching and piping construction details.

3.2.3.1 Trench Construction

Prior to trenching, the existing concrete floor was saw-cut along the trench perimeter. For each SVE well, the contractor excavated a well trench approximately 1.8 feet in width with a length approximately 0.2 feet longer than the length of the planned well screen. Additional trenches were excavated from the well trenches to emplace conveyance piping. The SVE well trenches extended no deeper than 3.5 feet bgs while the conveyance line trenches generally extend 1.5 feet bgs.

Most areas of trenching were excavated using a backhoe. In areas where footings or monitoring wells were present, trenches were excavated by hand. Once the trenches were excavated to the planned depth, clean sand was placed in the bottom of the trenches to provide uniform bearing and support for the system conveyance piping. Following installation of the conveyance piping and/or SVE wells, trenches were backfilled with approximately 18 inches of clean ¾-inch minus gravel. Filter fabric (MIRAFI fabric) was installed above clean fill material creating a barrier between clean fill material and the previously excavated impacted fill material that was used to backfill the trenches. The impacted fill material was then placed in the remainder of open trench to surface. The conveyance piping and SVE trench areas were restored by replacing the concrete surface to match adjacent thicknesses (generally 3 to 4 inches thick).

3.2.3.2 System Piping Installation

Underground piping and connections were installed to connect the SVE system wells to the aboveground treatment system equipment. Each 4-inch diameter SVE well was connected to individual 2-inch diameter Schedule 40 PVC soil vapor conveyance piping as shown on Figure 8. Connections at the SVE wells were made in the center of the screened interval using tee fittings to evenly distribute the vacuum along the length of the well screen. Where the underground conveyance piping intersected an interior dividing wall, the piping transitioned from horizontal flow to vertical flow, penetrated the wall horizontally, and then continued horizontally to the SVE manifold location. Where the conveyance piping transitioned from horizontal flow to vertical flow at the interior dividing walls, short sections of PVC pipe were installed below ground using tees to allow for the removal of condensate at the lowest point of the piping, if necessary. The sumps are completed with threaded caps above the ground surface that may be removed for pumping water.

The aboveground SVE manifold is constructed of 2-inch diameter Schedule 40 PVC pipe, rubber Fernco couplings, 2-inch gate valves, and other fittings. The manifold is constructed to allow an operator to measure and adjust flows and vacuums from each well, collect samples from individual SVE wells, and to measure the total combined flow and vacuum conditions from all wells at the manifold header.

Prior to backfilling and final installation, all new SVE conveyance pipes were pressure-tested by the system installation contractor under supervision of the EPI field engineer. Pressure testing was performed on November 15, 2017. All SVE piping was tested with compressed air at 3 psi and held for 30 minutes. Where testing indicated leakage or other defects, the faulty piping and/or connections were inspected and repaired or replaced and subsequently retested until pressure was successfully held for 30 minutes.

3.2.4 Remediation System Equipment Installation

Installation of the system equipment was performed during and following the trenching and piping installation activities. The remediation system equipment was supplied by GeoTech. Glacier personnel prepared the area for installation of the system equipment. Electrical work was completed by SHJ.

3.2.4.1 System Components

The SVE system unit and equipment was delivered to the Site on November 16, 2017. Upon delivery, the unit and equipment were installed on the existing concrete foundation. The system components include the following:

- Skid-mounted 10-horsepower regenerative vacuum extraction blower;
- Moisture knockout tank;
- NEMA 4 motor starter controller; and
- Associated filters, valves, sampling ports, gauges, and electrical controls.

Equipment specifications and connection details are identified in the P&ID illustrated on Figure 6. A complete list of system components and technical specification sheets is provided in Attachment C.

3.2.4.2 System Connections and Discharge Piping

Following installation of the remediation system skid, final piping connections were made to the equipment. This included completing the SVE piping manifolds and plumbing the vapor discharge conveyances. Completing the SVE manifold consisted of connecting 2-inch diameter Schedule 40 PVC pipe to the 2-inch galvanized steel pipe connected to the daylighted conveyance lines from the wells. System piping and connections for skid-mounted SVE components were installed by GeoTech prior to shipment to the Site.

System vapors are routed to a 4-inch diameter Schedule 40 PVC vapor exhaust stack that is vented through the roof of the building. The piping for the exhaust stack was secured at an interior dividing wall of the building, then transitioned through the roof to the building exterior. A vent cap was installed at the top of the exhaust stack to prevent precipitation from entering the stack.

Accumulated condensate is contained in a 38-gallon moisture knockout tank mounted on the system skid. The knockout tank is equipped with a high-liquid-level shutoff alarm that shuts down the blower when the moisture separator is full to protect the blower from flooding.

3.2.4.3 Electrical Components and Installation

A second 200-ampere distribution panel was installed adjacent to the SVE skid by SHJ. Conduit was then installed from the distribution panel for SVE System 1 to the new panel. The circuit breaker panel distributes power to the system's electrical control panel and to newly installed electrical outlets. The interior electrical and control panels are rated NEMA 4 and are also UL listed. All electrical wiring conforms to applicable laws, ordinances, building and construction codes, rules, and regulations.

SHJ installed wiring from the breaker panel to the treatment system control panel, which is mounted on the equipment skid. Electrical wiring and control diagrams for the system are provided in the vendor-supplied operations and maintenance manual presented in Attachment C. As a component of the electrical work for SVE System 2, SHJ installed two variable frequency drives (VFDs) – one for each of

the SVE systems to control the output of the SVE blowers. The VFDs are the S-Flex 212 model from Schneider Electric. Technical specification sheets for the VFDs are provided in Attachment C.

3.2.4.4 System Controls and Alarms

Manual system control valves and instrumentation were installed on the SVE piping manifolds and equipment to control and monitor SVE flow rates and vacuums. Other switches and controls were installed on the system components for equipment protection, and monitoring and controlling system vacuums and temperatures. A schematic of the controls and instrumentation is included on the P&ID on Figure 6.

Condensate accumulation within the moisture separator is monitored with a high-level alarm switch that shuts down the SVE system if the accumulated condensate rises above the maximum allowable level in the moisture separator.

The system's electrical control panel includes an "ON/OFF" switch for operating the SVE blower. The panel also includes variable frequency drives for controlling and monitoring the compressor and blower motors, and indicator lights for showing the following various alarm conditions when the system shuts down automatically:

- High water level in the moisture separator;
- High temperature at the SVE blower; and
- High vacuum at the SVE inlet.

The telemetry module (Sensaphone® Cell682) installed at the control panel for SVE System 1 monitors operational status of SVE System 2 as well as alarm status for each of the conditions indicated above. The module utilizes a local cellular service for remotely accessing this information via the internet. When the SVE system shuts down and an alarm condition occurs, the telemetry module has been programmed to alert operation and maintenance personnel via an auto-dialer. Additional information about the system control panel and telemetry module is provided in Attachment C.

3.2.5 Waste Management

Construction debris, excess excavated soil, and soil cuttings from installation of the ERD injection wells were removed from the Site and transported to appropriate disposal facilities. Wastes containing hVOCs and/or MTCA metals were characterized, handled, and disposed in accordance with the requirements of the Dangerous Waste Regulations (Washington Administrative Code 173-303). The wastes generated from the drilling activities were profiled using data collected during installation of the wells. Concrete wastes generated during construction were profiled using data collected from six concrete samples composited into two samples submitted for laboratory analysis. These samples were collected on September 9, and October 31, 2017 and submitted to ALS in Everett, Washington, for chemical analysis. The samples were analyzed for RCRA metals plus copper, nickel, and zinc using U.S. Environmental Protection Agency (EPA) Method 6020/7471. Copies of the analytical reports for these waste profiling samples are provided in Attachment D.

Soils excavated from the system piping trenches were stockpiled on a liner within the former Northwest Plating facility until system construction was complete. Once the SVE system had been pressure tested and construction was completed, the excavated soils were used to partially backfill the trench excavations. These soils were placed in the upper portion of the trenches, above the MIRAFI fabric to bring the trenches up to grade.

The concrete debris was designated as dangerous waste based on chromium concentrations and excess trench soils were transported and disposed of as RCRA-regulated waste based on hVOC concentrations at Waste Management's Subtitle C landfill located in Arlington, Oregon. Copies of the disposal documentation for these wastes are provided in Attachment E.

3.2.6 Site Restoration

Following completion of all trench backfilling and pipe connections, the perimeter floor surrounding the trenches was power washed and the trench areas were restored using newly mixed concrete to match the existing floor areas.

4.0 ERD INJECTIONS

In situ groundwater treatment using ERD has the primary objective of reducing dissolved-phase concentrations of VOCs, thereby limiting the downgradient and cross-gradient migration of those compounds and reducing the potential for vapor intrusion of those compounds. The ERD treatment well geometry was designed to treat the source area and downgradient groundwater and to address potential cross-gradient migration of VOCs to the south onto the Perine Property.

4.1 ERD Design

The shallow groundwater zone at locations within the dissolved-phase plume was evaluated for the suitability of using ERD to treat hVOCs. The appropriate injectate and mixture design was based on geochemical analyses of the following geochemical parameters:

- Total metals, including arsenic, barium, cadmium, chromium, copper, iron, lead and selenium, by EPA Method 6020;
- Anions, including chloride, bromide, nitrate, nitrite and sulfate, by EPA Method 300.0;
- Sulfide by EPA Method 376.1;
- Carbon dioxide and methane by Method RSK 175;
- Alkalinity by EPA Method 310.1;
- Total organic carbon (TOC) and dissolved organic carbon (DOC) by EPA Method 415.1; and
- Chemical oxygen demand (COD) by EPA Method 410.4.

In addition to the laboratory analyses, groundwater from select wells was analyzed in the field for soluble ferrous iron and manganese using Hach field kits.

Based on the results of the geochemical parameters and the estimated VOC mass in the shallow aquifer, an injection protocol was designed by Dr. Leo Lehmicke of Rockford, Tennessee. Dr. Lehmicke is a

Ph.D. biochemist and bioremediation expert who was retained as a subconsultant to EPI during evaluation of ERD and bioaugmentation treatability data. The designed injection protocol specified loading rates for both the bioaugmentation and the ERD application. The ERD treatment was conducted in two phases. The first treatment phase targeted the source area groundwater in the south-central portion of the WII building. The second treatment phase targeted downgradient hVOC impacts immediately northwest of the building apron.

4.2 Aquifer Bioaugmentation

The initial step in the ERD treatments was to inoculate each injection well with cultured strains of *dehalococcoides ethanogenes* and *dehalobacter* to facilitate an increase in bacterial populations, which in turn facilitate the remediation of hVOCs. For the bioaugmentation culture, EPI selected the KB-1® bioaugmentation culture provided by SiREM of Guelph, Ontario.

During each event, prior to injecting the bioaugmentation culture, the shallow aquifer was flushed with anaerobic water. This was accomplished by mixing approximately 3.5 kilograms of an oxygen-scavenging product, Newman Zone OS from RNAS Remediation Products, Inc. (RNAS), with approximately 2,500 gallons of municipal tap water. The water was allowed to mix for approximately 14 hours for each event. The resulting dissolved oxygen (DO) level was measured at approximately 0.3 milligrams per liter (mg/L), and the oxidation-reduction potential (ORP) was measured at -176 milliVolts (mV) for the first injection event. The DO and ORP were measured at 0.6 mg/L and -183 mV, respectively, for the second injection event. Once the water was rendered sufficiently anaerobic, approximately 600 gallons of water was injected into the shallow aquifer via the ERD injection wells (100 gallons per well) at a rate of approximately 2 gallons per minute per well. The injection was accomplished using a 10-channel injection manifold provided by RNAS. The injection rate and injection volume were monitored using flow meters provided by RNAS.

After the initial anaerobic water flush, the groundwater formation was inoculated with the KB-1® bioaugmentation culture. An argon gas blanket was applied to each well prior to inoculation. Then, approximately 3.5 kilograms of the culture was injected below the water surface in each of the ERD injection wells using compressed argon gas to propel the culture into the formation. Following the inoculation, the remaining 2,000 gallons of anaerobic water was injected into the formation to complete the flushing effort.

4.3 ERD Application

For each injection event, once the bioaugmentation culture had been injected into the shallow aquifer, EPI began injecting the electron donor material Newman Zone from RNAS. Newman Zone is an emulsified vegetable oil (EVO) containing approximately 50 percent (by weight) soybean oil, 4 percent sodium-L-lactate, and 1 percent sodium bicarbonate. The injection protocol called for injection of 520 gallons (4,200 pounds) of Newman Zone diluted at approximately 2 percent with municipal water for a total injection volume of approximately 26,000 gallons.

As with the bioaugmentation culture, the EVO injection was conducted and monitored using the 10-channel injection manifold and flow meters provided by RNAS. The media was injected at a rate of approximately 1.5 gallons per minute over a period of 5 days. At the end of each day, the injection equipment was flushed with municipal water to prevent emulsification of equipment and injection well screens.

After media injections, both the treatment wells and downgradient monitoring wells were monitored for TOC as an indicator of sufficient substrate and for dissolved oxygen, pH, and other indicators of reducing conditions such as ORP. Periodic samples for biological assay were also collected to ensure that a robust bacterial population was being maintained.

5.0 SVE SYSTEM STARTUP

Once the system installation was complete, startup testing was performed to check the function of all system components and obtain initial operational baseline data. Startup testing also included collection and analysis of system vapor samples to estimate potential emissions and verify exemption from the air permitting process. Once baseline testing was complete, the system was started up for continuous operation. Details of the system startup and initial operation are summarized below.

5.1 SVE System 1 Startup Testing

On May 1, 2017, EPI personnel performed a preliminary system check. The power to the system was turned on and all electrical components, including sensors, alarms, and system wiring, were checked to ensure proper operation. Various adjustments were made, and then the system was started to perform a full-scale pilot test of the SVE components. The system gauges were monitored to confirm that they were correctly displaying system operational parameters.

Full SVE System 1 startup testing was conducted beginning on May 2, 2017. During system startup testing, EPI personnel monitored the SVE system operational parameters and collected system vapor samples for laboratory analysis. System vacuums and flow rates were observed to be within the design parameters. Vapor concentrations were also individually measured at the SVE wells with a photoionization detector (PID). The PID readings at the individual wells ranged from 17 parts per million (ppm) to 398 ppm, with the highest concentration detected from extraction well SVE-4, which is located in the western portion of the soil “source area.” This is the area where the greatest TCE concentrations in soil have been observed. The PID readings for the SVE wells are summarized in Table 1.

While the system was operating, system vapors at the GAC vessels were monitored with the PID and samples were collected at the inlet of the primary GAC (influent vapor sample “AIR-INF”) and at the outlet of the secondary GAC (effluent vapor sample “AIR-EFF”) for laboratory analysis. Each sample was collected into a Tedlar® bag and submitted to Fremont Analytical in Seattle, Washington. Both samples were analyzed for VOCs using EPA Method 8260C. TCE was reported in the system influent at a concentration of 93.3 µg/L and was not identified in the system effluent at a concentration exceeding the sample quantitation limit of 0.100 µg/L. Other compounds were also detected in the influent sample at very low concentrations (i.e., generally less than 5 µg/L), but were not detected in the effluent sample.

Overall, the results indicate a control efficiency of greater than 98 percent for the GAC vessels. A copy of the analytical report is included in Attachment F.

5.1.1 Initial System Monitoring

During the startup period, the system was monitored daily for a period of 1 week, followed by twice-weekly visits for 2 weeks, then weekly visits for 1 month. Each Site visit during this period included monitoring and recording system operational parameters, including vacuums, flow rates, and vapor concentrations. The system was also checked for accumulated condensate.

The system monitoring data collected during the startup period indicate that the SVE components were operating within the design ranges for vacuum and flow. Operational data for the SVE system is summarized as follows:

- The applied system vacuum was consistently measured at approximately 5 inches of water column (inches w.c.), with total system vapor flow rates to the carbon vessels ranging from approximately 305 scfm to 343 scfm. Individual SVE wellhead vacuums were consistent at 5 inches w.c., and individual SVE wellhead vapor flow rates ranging from approximately 37 scfm to 50 scfm. Vapor VOC concentrations measured with a PID on the discharge side of the SVE blower before the primary GAC vessel ranged from 4 ppmv to 284 ppmv. Individual SVE wellhead concentrations ranged from 1 ppmv to 398 ppmv (observed at SVE-4 on May 1, 2017).

- VOCs detected in the effluent vapor using a PID were generally less than 2 ppmv; however, the mid-carbon PID concentration increased to 7 ppmv on June 30, 2017 and to 90 ppmv on July 28, 2017, suggesting breakthrough of the primary vapor-phase GAC vessels. Laboratory analytical results for effluent vapor samples collected during on those dates confirmed breakthrough of both the primary and secondary GAC vessels (Attachment F).

- At the time breakthrough was observed, the VOC removal rate for the system was 0.3 pounds per day (less than 110 pounds per year), which is significantly less than the 1,000 pounds per year allowed under the PSCAA exemption criterion. Therefore, on August 4, 2017, the GAC vessels were removed from the system, and the effluent vapors were routed to discharge directly to the atmosphere via the roof stack.

- System water monitoring data indicate that the system did not produce any water during the startup period.

System vapors samples were collected for laboratory analysis during the startup period to confirm exemption from air permitting requirements and to estimate the amount of contaminant mass removed from the Site. Vapor samples were collected at the SVE discharge (influent sample, “AIR-INF”) and at the secondary GAC discharge (effluent sample, “AIR-EFF”) during system operations and maintenance (O&M) events. EPI performed 13 O&M events between May 1, 2017 and June 30, 2017. Vapor samples were submitted to Fremont Analytical for analysis of VOCs as described in Section 5.1. During the startup period, total VOC concentrations in the influent vapor samples ranged from 10.82 µg/L to 208.7 µg/L,

while total VOC sample concentrations in the effluent vapor samples remained less than the sample quantitation limit until breakthrough occurred in June 2017. Copies of the vapor sampling analytical reports are included in Attachment F.

Based on the system monitoring data collected during the startup period, SVE System 1 extracted approximately 32.1 pounds of total VOCs from the Site between May 1, 2017 and June 30, 2017. During this period, the system operated for a total of 58.5 days. A summary of initial system operating data and estimated extracted total VOCs is presented in Table 2. Operational parameters for the SVE wells are summarized in Table 1.

5.2 SVE System 2 Startup Testing

On December 1, 2017, EPI personnel performed a preliminary system check. The power to the system was turned on and all electrical components, including sensors, alarms, and system wiring, were checked to ensure proper operation. Various adjustments were made, and then the system was started to perform a full-scale pilot test of the SVE components. The system gauges were monitored to confirm that they were correctly displaying system operational parameters.

Full system startup testing was conducted beginning on December 4, 2017. During system startup testing, EPI personnel monitored the SVE system operational parameters and collected system vapor samples for laboratory analysis. System vacuums and flow rates were observed to be within the design parameters. Vapor concentrations were also individually measured at the SVE wells with a photoionization detector (PID). The PID readings at the individual wells ranged from 0.0 parts per million to 6.5 ppm, with the highest concentration detected from extraction well SVE-10, which is in the northwestern portion of the building. The PID readings for the SVE wells are summarized in Table 3.

While the system was operating, system vapors at the blower discharge were monitored with the PID and an initial vapor sample was collected from the blower discharge pipe for laboratory analysis. The sample was collected into a Tedlar® bag and submitted to Fremont Analytical in Seattle, Washington. The sample was analyzed for VOCs using EPA Method 8260C. TCE was reported in the system effluent at a concentration of 0.276 µg/L. A copy of the analytical report is included in Attachment F.

5.2.1 Initial System Monitoring

During the startup period, the system was monitored daily for a period of 1 week, followed by twice-weekly visits for 2 weeks, then weekly visits for 1 month. Each Site visit during this period included monitoring and recording system operational parameters, including vacuums, flow rates, and vapor concentrations. The system was also checked for accumulated condensate.

The system monitoring data collected during the startup period indicate that the SVE components were operating within the design ranges for vacuum and flow. Operational data for the SVE system is summarized as follows:

- The applied system vacuum was consistently measured at approximately 20 inches w.c., with total system vapor flow rates to the discharge stack ranging from approximately 374 scfm to 427 scfm. Individual SVE wellhead vacuums were consistent at 15 inches w.c., and individual SVE wellhead vapor flow rates ranging from approximately 1 scfm to 80 scfm. Vapor VOC concentrations measured with a PID on the discharge side of the SVE blower ranged from 0.6 ppmv to 7.6 ppm. Individual SVE wellhead concentrations ranged from 0 ppm to 6.5 ppm.

- System water monitoring data indicate that the system did not produce any water during the startup period.

System vapors samples were collected for laboratory analysis during the startup period to confirm exemption from air permitting requirements and to estimate the amount of contaminant mass removed from the Site. Vapor samples were collected at the SVE discharge (effluent sample, "AIR-INF") and at the secondary GAC discharge (effluent sample, "S2-EFF") during system O&M events. EPI performed 14 O&M events between December 4, 2017 and February 26, 2018. Vapor samples were submitted to Fremont Analytical for analysis of VOCs as described in Section 5.1. During the startup period, total VOC concentrations in the effluent vapor samples ranged from 0.276 µg/L to 3.475 µg/L. Copies of the vapor sampling analytical reports are included in Attachment F.

Based on the system monitoring data collected during the startup period, SVE System 2 extracted approximately 3.57 pounds of total VOCs from the Site between December 4, 2017 and February 26, 2018. During this period, the system operated for a total of 84.4 days. A summary of initial system operating data and estimated extracted total VOCs is presented in Table 4. Operational parameters for the SVE wells are summarized in Table 2.

6.0 SYSTEM OPERATION AND MAINTENANCE

At a minimum, O&M Site visits will continue to be performed monthly. During each O&M event, all SVE system operational parameters and individual system well parameters will be monitored and recorded on a Site-specific O&M field form (see Attachment G). System adjustments will be made as necessary to optimize performance of the system, and routine maintenance of system components will be performed in accordance with the vendor-supplied system O&M manual (Attachment C).

Extracted vapors will also be monitored with a PID and vapor samples will be collected monthly for laboratory analysis. If significant condensate has accumulated at the time of an O&M event, a sample of the fluid will also be collected for laboratory analysis.

7.0 REPORTING

The Site is currently undergoing a program of quarterly groundwater monitoring and reporting. The groundwater sampling and analysis serves as the reporting mechanism for the progress of the ERD interim action for improving groundwater quality at the Site.

Each quarterly groundwater monitoring report will also include sections detailing the operation of the SVE systems and O&M monitoring as well as any necessary repairs, maintenance or modifications to the operation of the SVE systems.

A summary annual report will include interpretations of annual trends both groundwater quality data and calculations of total mass recovery by the SVE systems.

8.0 LIMITATIONS

To the extent that preparation of this report required the application of best professional judgment and the application of scientific principles, certain aspects of this work have been based on subjective interpretation. EPI makes no warranties, express or implied, including and without limitation warranties as to merchantability or fitness for a particular purpose. The information provided in this *Remedial Action System As-Built and Startup Report* is not to be construed as legal advice.

Tables

Table 1
System 1 SVE Well Monitoring Data
Interim Action System As-Built and Startup Report
Washington Industries Environmental Remediation Trust
825 South Dakota Street and 812 and 820 South Adams Street, Seattle, Washington

SVE Well ID	Date	Vacuum (inches w.c.)	Extraction Flow Rate (scfm)	PID Reading (ppmv)
SVE-1	05/01/17	5	48	111
	05/02/17	5	49.0	104
	05/03/17	5	50.0	272
	05/05/17	5	49.0	23
	05/08/17	5	50.0	6
	05/10/17	5	47.0	4
	05/15/17	5	52.0	3
	05/19/17	5	56.0	5
	05/22/17	5	53.0	1
	05/30/17	5	--*	5
	06/05/17	5	48.0	5
	06/15/17	5	50.0	3
	06/30/17	5	47.0	3
SVE-2	05/01/17	5	47	326
	05/02/17	5	44.0	259
	05/03/17	5	45.0	168
	05/05/17	5	43.0	64
	05/08/17	5	42.0	18
	05/10/17	5	41.0	10
	05/15/17	5	47.0	7
	05/19/17	5	48.0	10
	05/22/17	5	45.0	4
	05/30/17	5	--*	13
	06/05/17	5	44.0	12
	06/15/17	5	44.0	8
	06/30/17	5	40.0	10
SVE-3	05/01/17	5	41	397
	05/02/17	5	39.0	365
	05/03/17	5	40.0	245
	05/05/17	5	40.0	99
	05/08/17	5	38.0	30
	05/10/17	5	37.0	17
	05/15/17	5	42.0	13
	05/19/17	5	43.0	14
	05/22/17	5	42.0	7
	05/30/17	5	--*	19
	06/05/17	5	41.0	19
	06/15/17	5	40.0	10
	06/30/17	5	38.0	12
SVE-4	05/01/17	5	38	398
	05/02/17	5	37.0	398
	05/03/17	5	37.0	255
	05/05/17	5	35.0	127
	05/08/17	5	35.0	37
	05/10/17	5	36.0	23
	05/15/17	5	38.0	16
	05/19/17	5	39.0	20
	05/22/17	5	41.0	12
	05/30/17	5	--*	20
	06/05/17	5	38.0	27
	06/15/17	5	37.0	16.0
	06/30/17	5	39.0	17

Table 1
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825 South Dakota Street and 812 and 820 South Adams Street, Seattle, Washington

SVE Well ID	Date	Vacuum (inches w.c.)	Extraction Flow Rate (scfm)	PID Reading (ppmv)
SVE-5	05/01/17	5	40	164
	05/02/17	5	41.0	89
	05/03/17	5	45.0	60
	05/05/17	5	41.0	43
	05/08/17	5	38.0	10
	05/10/17	5	40.0	9
	05/15/17	5	42.0	8
	05/19/17	5	44.0	7
	05/22/17	5	42.0	6
	05/30/17	5	--*	17
	06/05/17	5	41.0	19
	06/15/17	5	41.0	10
	06/30/17	5	40.0	14
SVE-6	05/01/17	5	50	75
	05/02/17	5	50.0	31
	05/03/17	5	55.0	20
	05/05/17	5	52.0	16
	05/08/17	5	48.0	3
	05/10/17	5	48.0	3
	05/15/17	5	53.0	2
	05/19/17	5	55.0	2
	05/22/17	5	54.0	3
	05/30/17	5	--*	17
	06/05/17	5	53.0	3
	06/15/17	5	52.0	8
	06/30/17	5	51.0	2
SVE-7	05/01/17	5	47	23
	05/02/17	5	49.0	17
	05/03/17	5	50.0	14
	05/05/17	5	48.0	8
	05/08/17	5	46.0	2
	05/10/17	5	47.0	2
	05/15/17	5	51.0	1
	05/19/17	5	54.0	1
	05/22/17	5	51.0	4
	05/30/17	5	--*	15
	06/05/17	5	48.0	1
	06/15/17	5	49.0	3
	06/30/17	5	49.0	2

Notes:

SVE	Soil vapor extraction.
inches w.c.	Inches of water column.
scfm	Standard cubic feet per minute.
PID	Photoionization detector.
ppmv	Parts per million by volume.
--*	Anemometer not functioning properly.

Table 2
System 1 SVE System Operation Summary
Interim Action System As-Built and Startup Report
Washington Industries Environmental Remediation Trust
825 South Dakota Street and 812 and 820 South Adams Street, Seattle, Washington

Date	Field Inputs				Mass Removal			Vapor Control Efficiency			Vapor Control Efficiency PID Screening			
	SVE Run Time Since Last Event (days)[a]	Total Flow Rate to Carbon[b] (scfm)	Influent VOC Conc. To Carbon[c] (µg/L)	Effluent VOC Conc.[d] (µg/L)	VOC Removal Rate[e] (lbs/day)	VOCs Removed During Period[f] (lbs)	Cumulative VOCs Removed[g] (lbs)	Mass Flow Rate In (lbs/day)	Mass Flow Rate Out (lbs/day)	Carbon Adsorption Control Efficiency[h] (%)	Inf-Carbon PID Reading (ppm)	Mid-Carbon PID Reading (ppmv)	Post-Carbon PID Reading (ppmv)	Carbon Adsorption Control Efficiency
05/01/17	0.20	310	208.730	0.000	5.9	2.4	2.4	5.9	0.0	100.0	284	0	0	100.0
05/02/17	0.40	313	99.790	0.000	2.8	1.1	3.5	2.8	0.0	100.0	162	0	0	100.0
05/03/17	0.30	305	90.930	0.200	2.5	0.7	4.3	2.5	0.005	99.8	111	0	0	100.0
05/05/17	1.80	343	49.060	0.000	1.5	2.7	7.0	1.5	0.0	100.0	53	0	0	100.0
05/08/17	2.95	325	34.260	0.000	1.0	2.9	9.9	1.0	0.0	100.0	14	0	0	100.0
05/10/17	1.95	315	30.108	0.000	0.9	1.7	11.6	0.9	0.0	100.0	16	0	0	100.0
05/15/17	4.96	326	18.571	0.000	0.5	2.7	14.3	0.5	0.0	100.0	13	1	0	100.0
05/19/17	4.18	335	20.684	0.000	0.6	2.6	16.9	0.6	0.0	100.0	10	2	0	100.0
05/22/17	2.98	327	14.989	0.000	0.4	1.3	18.2	0.4	0.0	100.0	4	2	0	100.0
05/30/17	7.84	320	17.120	0.000	0.5	3.9	22.1	0.5	0.0	100.0	27	2	0	100.0
06/05/17	6.00	321	12.093	0.000	0.3	2.1	24.1	0.3	0.0	100.0	18	10	0	100.0
06/15/17	9.98	305	11.571	0.000	0.3	3.2	27.3	0.3	0.0	100.0	9	8	0	100.0
06/30/17	14.99	330	10.819	0.697	0.3	4.8	32.1	0.3	0.3	93.6	8	7	1	87.5
Run time	58.53													

Notes:

a	Days of SVE operation since last visit.
b	Collected from AIR-INF location, post dilution.
c	Collected from SVE-TOT location, post dilution.
d	Collected from AIR-EFF location, effluent carbon.
e	Calculated as: Removal rate (lbs/day) = [[flow rate(scfm)*1440 (min/day)]*[28.3(L/Ft3)*Inf. Conc (µg/L)]]/454,000,000 µg/lb
f	Calculated as: [GRPH Removal Rate (lbs/day) * Time Since Last Event (days)]
g	Calculated as: [Cumulative GRPH Removed (lbs) + GRPH Removed During Period (lbs)]
h	Calculated as: [(Mass flow rate In - Mass Flow rate Out)/(Mass flow rate in)] * 100
SVE	Soil vapor extraction.
scfm	Standard cubic feet per minute.
VOC	Volatile organic compound.
Conc.	Concentration.
µg/L	Micrograms per liter.
ppm	Parts per million.
ppmv	Parts per million, by volume.
µg/L	Micrograms per liter.
lbs	Pounds.
%	Percent.
PID	Photoionization detector.

Table 3
System 2 SVE Well Monitoring Data
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Washington Industries Environmental Remediation Trust
825 South Dakota Street and 812 and 820 South Adams Street, Seattle, Washington

SVE Well ID	Date	Vacuum (inches w.c.)	Extraction Flow Rate (scfm)	PID Reading (ppmv)
SVE-8	12/04/17	12.0	44.0	0.0
	12/05/17	12.0	42.0	0.0
	12/06/17	15.0	46.0	0.6
	12/07/17	15.0	46.0	0.5
	12/08/17	15.5	46.0	0.3
	12/11/17	14.0	49.0	0.4
	12/14/17	14.0	47.0	0.6
	12/18/17	15.0	46.0	0.3
	12/21/17	15.0	47.0	0.1
	12/28/17	15.0	48.0	0.0
	01/04/18	16.0	45.0	0.0
	01/12/18	15.0	41.0	0.0
	01/18/18	15.0	39.8	0.2
	02/26/18	15.0	47.2	0.1
SVE-9	12/04/17	11.0	18.0	0.0
	12/05/17	12.0	21.0	0.0
	12/06/17	15.0	17.0	1.1
	12/07/17	15.0	2.0	0.5
	12/08/17	15.7	3.0	0.6
	12/11/17	14.0	2.0	0.7
	12/14/17	14.0	2.0	0.3
	12/18/17	15.0	8.0	0.7
	12/21/17	15.0	18.0	0.4
	12/28/17	15.0	7.0	0.3
	01/04/18	16.0	3.0	0.0
	01/12/18	15.0	8.0	0.3
	01/18/18	15.0	0.6	1.2
	02/26/18	15.0	4.7	0.0
SVE-10	12/04/17	11.0	45.0	2.7
	12/05/17	12.0	45.0	0.0
	12/06/17	14.5	42.0	6.5
	12/07/17	15.0	47.0	6.0
	12/08/17	15.5	47.0	4.9
	12/11/17	13.5	68.0	5.7
	12/14/17	13.8	48.0	0.9
	12/18/17	15.0	48.0	2.5
	12/21/17	15.0	50.0	1.9
	12/28/17	15.0	51.0	0.0
	01/04/18	16.0	46.0	0.5
	01/12/18	15.0	45.0	0.4
	01/18/18	15.0	44.9	1.3
	02/26/18	15.0	54.8	0.1

Table 3
System 2 SVE Well Monitoring Data
Interim Action System As-Built and Startup Report
Washington Industries Environmental Remediation Trust
825 South Dakota Street and 812 and 820 South Adams Street, Seattle, Washington

SVE Well ID	Date	Vacuum (inches w.c.)	Extraction Flow Rate (scfm)	PID Reading (ppmv)
SVE-11	12/04/17	11.0	65.0	0.0
	12/05/17	12.0	71.0	0.0
	12/06/17	14.5	62.0	1.5
	12/07/17	15.0	67.0	1.6
	12/08/17	15.0	66.0	1.3
	12/11/17	13.0	70.0	1.2
	12/14/17	13.5	68.0	0.1
	12/18/17	15.0	74.0	0.5
	12/21/17	15.0	72.0	0.7
	12/28/17	14.5	70.0	0.5
	01/04/18	15.0	70.0	0.2
	01/12/18	15.0	69.0	0.0
	01/18/18	14.5	69.0	0.5
	02/26/18	14.0	76.5	0.1
SVE-12	12/04/17	11.0	70.0	0.0
	12/05/17	12.0	73.0	0.0
	12/06/17	14.5	73.0	1.0
	12/07/17	14.5	74.0	0.8
	12/08/17	14.5	74.0	0.8
	12/11/17	13.0	77.0	0.7
	12/14/17	13.5	77.0	0.2
	12/18/17	14.0	79.0	0.2
	12/21/17	14.5	77.0	0.6
	12/28/17	14.0	82.0	0.0
	01/04/18	15.0	80.0	0.0
	01/12/18	14.0	76.0	0.0
	01/18/18	14.5	75.0	0.3
	02/26/18	15.0	81.3	0.0
SVE-13	12/04/17	11.0	62.0	0.3
	12/05/17	11.0	62.0	0.0
	12/06/17	14.5	65.0	1.5
	12/07/17	14.5	65.0	1.2
	12/08/17	14.5	65.0	1.0
	12/11/17	12.5	67.0	1.5
	12/14/17	13.0	67.0	0.3
	12/18/17	14.5	70.0	0.6
	12/21/17	14.5	70.0	0.0
	12/28/17	15.0	70.0	0.0
	01/04/18	15.0	70.0	0.1
	01/12/18	14.5	70.0	0.1
	01/18/18	14.5	66.0	0.5
	02/26/18	14.0	69.0	0.1

Notes:

SVE	Soil vapor extraction.
inches w.c.	Inches of water column.
scfm	Standard cubic feet per minute.
PID	Photoionization detector.
ppmv	Parts per million by volume.
--*	Anemometer not functioning properly.

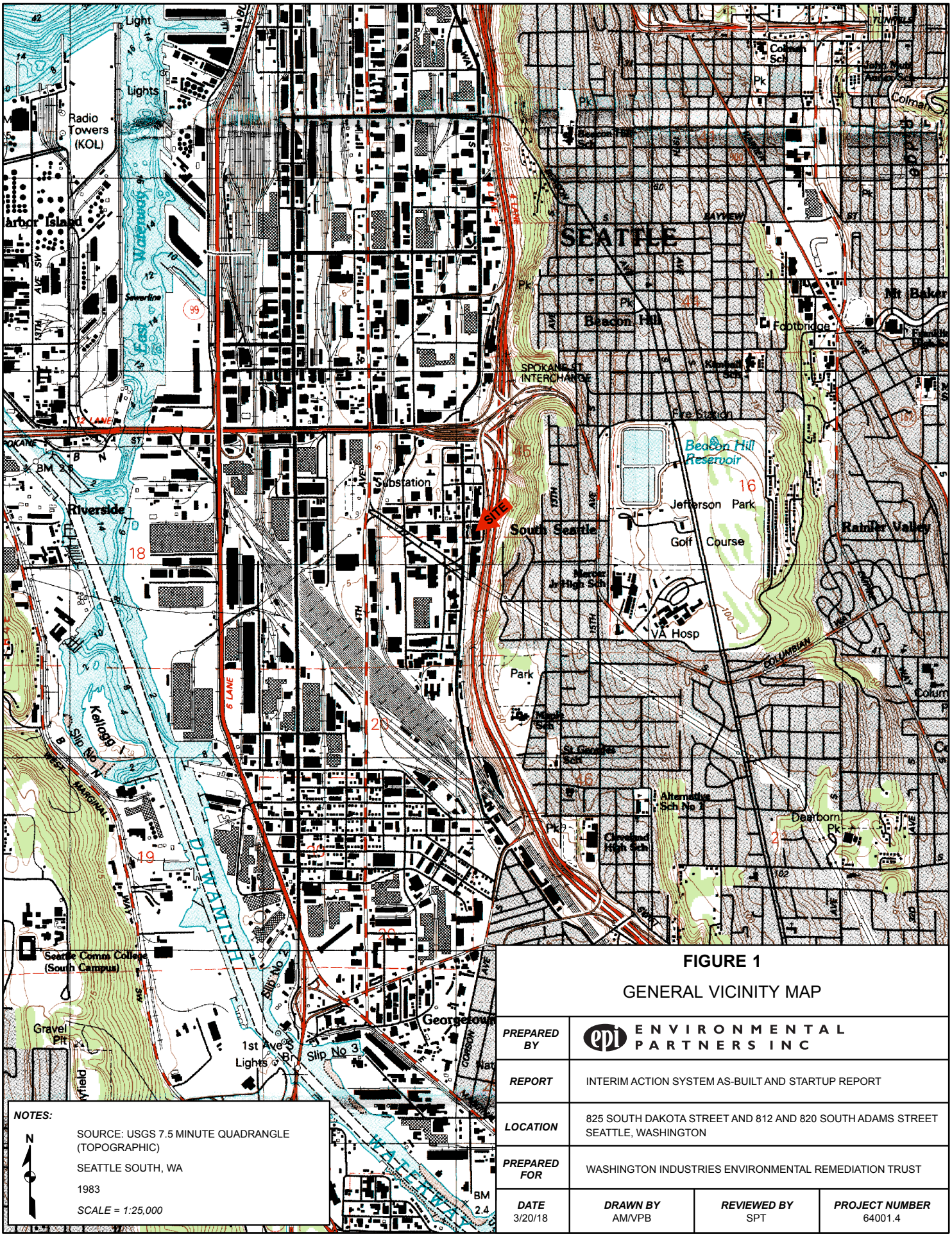
Table 4
System 2 SVE System Operation Summary
Interim Action System As-Built and Startup Report
Washington Industries Environmental Remediation Trust
825 South Dakota Street and 812 and 820 South Adams Street, Seattle, Washington

Date	Field Inputs			Mass Removal		
	SVE Run Time Since Last Event (days)[a]	Total Flow Rate (scfm)[b]	Effluent VOC Conc. (µg/L)[b]	VOC Removal Rate (lbs/day)[c]	VOCs Removed During Period (lbs)[d]	Cumulative VOCs Removed (lbs)[e]
12/4/2017	0.40	426	0.276	0.01	0.00	0.00
12/4/2017	0.13	426	1.916	0.07	0.01	0.01
12/5/2017	0.79	427	1.250	0.05	0.04	0.05
12/5/2017	0.21	427	1.432	0.05	0.01	0.06
12/6/2017	0.80	395	2.567	0.09	0.07	0.14
12/7/2017	1.13	397	2.025	0.07	0.08	0.22
12/8/2017	0.88	399	3.475	0.12	0.11	0.33
12/11/2017	3.11	394	2.292	0.08	0.25	0.58
12/14/2017	3.50	389	2.004	0.07	0.24	0.82
12/18/2017	3.50	399	2.489	0.09	0.31	1.14
12/21/2017	3.20	390	1.711	0.06	0.19	1.33
12/28/2017	7.20	374	1.900	0.06	0.46	1.79
1/4/2018	6.40	381	0.742	0.03	0.16	1.95
1/12/2018	7.90	399	0.859	0.03	0.24	2.19
1/18/2018	6.25	406	0.972	0.04	0.22	2.41
2/26/2018	39.00	403	0.818	0.03	1.16	3.57
Run time	84.40					

Notes:

a	Days of SVE operation since last visit.
b	Collected from SVE-TOT location, post dilution.
c	Calculated as: Removal rate (lbs/day) = [[flow rate(scfm)*1440 (min/day)]*[28.3(L/Ft3)*Inf. Conc (µg/L)]]/454,000,000 µg/lb
d	Calculated as: [GRPH Removal Rate (lbs/day) * Time Since Last Event (days)]
e	Calculated as: [Cumulative GRPH Removed (lbs) + GRPH Removed During Period (lbs)]
SVE	Soil vapor extraction.
scfm	Standard cubic feet per minute.
VOC	Volatile organic compound.
Conc.	Concentration.
µg/L	Micrograms per liter.
lbs	Pounds.
µg/lb	Micrograms per pound.

Figures



NOTES:

N

SOURCE: USGS 7.5 MINUTE QUADRANGLE (TOPOGRAPHIC)

SEATTLE SOUTH, WA

1983

SCALE = 1:25,000

FIGURE 1

GENERAL VICINITY MAP

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	INTERIM ACTION SYSTEM AS-BUILT AND STARTUP REPORT		
LOCATION	825 SOUTH DAKOTA STREET AND 812 AND 820 SOUTH ADAMS STREET SEATTLE, WASHINGTON		
PREPARED FOR	WASHINGTON INDUSTRIES ENVIRONMENTAL REMEDIATION TRUST		
DATE 3/20/18	***DRAWN BY*** AM/VPB	***REVIEWED BY*** SPT	***PROJECT NUMBER*** 64001.4

MW-27s
MW-12
7TH AVENUE SOUTH
AIRPORT WAY
MW-9
9TH AVENUE SOUTH
INTERSTATE 5
MW-10i
MW-10
DGV-2
MW-26s
MW-26i
SBW-3
SBW-4
MW-11
SBW-2
SBW-1
48-60" Storm Sewer
8-18" Sanitary Sewer
MW-28s
SOUTH DAKOTA STREET
DGV-1
MW-8s
MW-8
MW-7d
MW-6
MW-3
MW-5B
MW-5
MW-2
MW-7ir
MW-7s
MW-7i
MW-18
MW-17
MW-19
MW-1i
MW-1
WISS-4
FORMER AV-PRO LEASE SPACE
MW-15s
WISS-2
MW-15i
SB-15d
FORMER NORTHWEST PLATING BUILDING
MW-14
WISS-1
MW-13
MW-4
MW-4i
MW-07
MW-24ir
MW-16
MW-24i
MW-24s
WISS-3
MW-29s
VS-3
MW-20s
MW-20i
VS-1
MW-05s
MW-05i
RAIL SPUR
MW-21s
MW-21i
VS-2
CURRENT AV-PRO LEASE SPACE 812 SOUTH ADAMS STREET
VS-8
MW-23i
MW-23s
PERINE-DANFORTH BUILDING 820 SOUTH ADAMS STREET
VS-7
MW-22i
MW-22s
DGV-3
MW-25i
MW-25s

NOTES:

- SHALLOW MONITORING WELL LOCATIONS
- INTERMEDIATE MONITORING WELL LOCATIONS
- DEEP MONITORING WELL LOCATIONS
- DECOMMISSIONED WELL LOCATIONS
- SOIL GAS SAMPLE LOCATION
- PARCEL BOUNDARY
- APPROXIMATE SITE BOUNDARY - DASHED WHERE INFERRED

NOTE: DIRECT-PUSH TECHNOLOGY SAMPLE LOCATIONS OMITTED FOR CLARITY

N

0 15 30 60

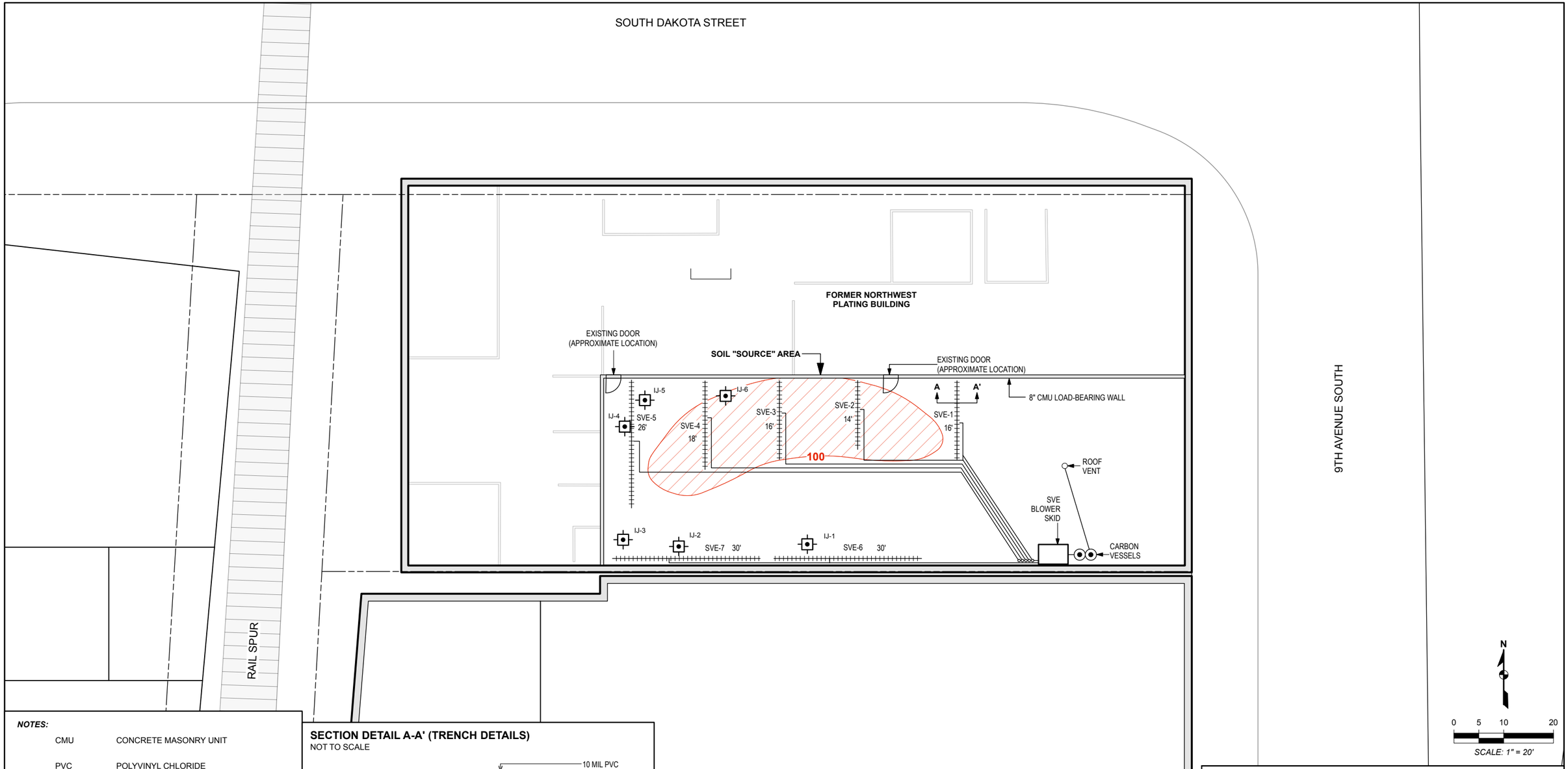
SCALE: 1" = 60'

FIGURE 2

SITE REPRESENTATION

PREPARED BY	ENVIRONMENTAL PARTNERS INC
REPORT	INTERIM ACTION SYSTEM AS-BUILT AND STARTUP REPORT
LOCATION	825 SOUTH DAKOTA STREET AND 812 AND 820 SOUTH ADAMS STREET SEATTLE, WASHINGTON
PREPARED FOR	WASHINGTON INDUSTRIES ENVIRONMENTAL REMEDIATION TRUST

DATE	***DRAWN BY***	***REVIEWED BY***	***PROJECT NUMBER***
3/20/18	AM/VPB	SPT	64001.4



NOTES:

CMU	CONCRETE MASONRY UNIT
PVC	POLYVINYL CHLORIDE
	LOCATION OF ENHANCED REDUCTIVE DECHLORINATION (ERD) INJECTION WELL
30'	SOIL VAPOR EXTRACTION (SVE) PIPING AND SCREENED INTERVAL (WITH LENGTH OF SCREEN IN FEET)
	APPROXIMATE PARCEL BOUNDARY
100	TRICHLOROETHENE (TCE) SOIL ISOCONTOURS WITH CONCENTRATION IN MILLIGRAMS PER KILOGRAM
	BUILDING FOOTPRINT AND INTERIOR PARTITIONS
A A'	SECTION DETAIL LOCATION

SECTION DETAIL A-A' (TRENCH DETAILS)

NOT TO SCALE

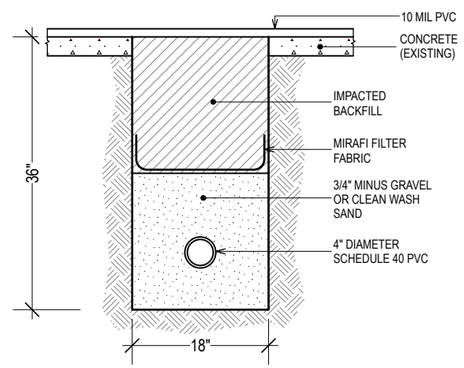
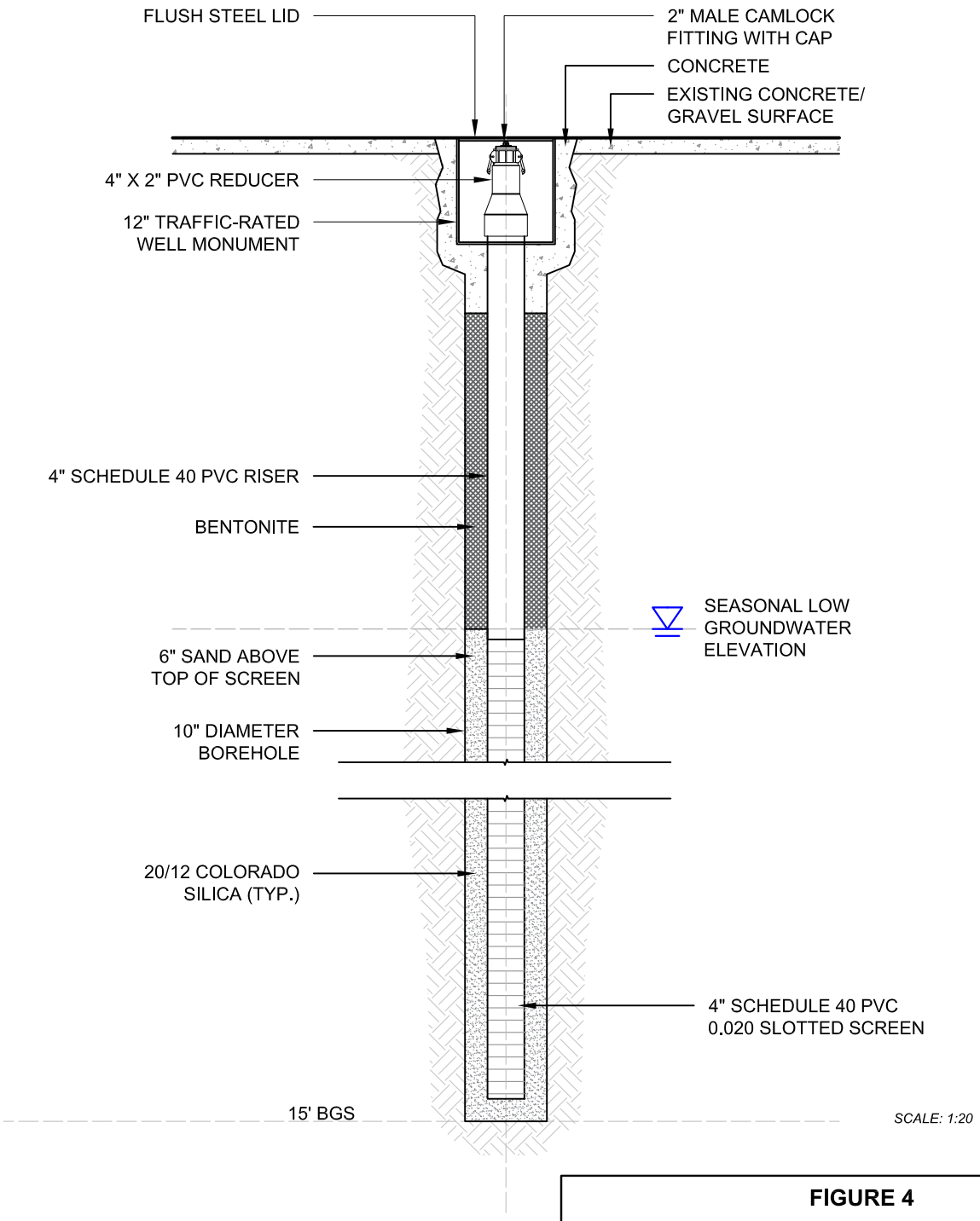


FIGURE 3

ERD AND SVE SYSTEM 1 WELLS AND PIPING LAYOUT

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	INTERIM ACTION SYSTEM AS-BUILT AND STARTUP REPORT		
LOCATION	825 SOUTH DAKOTA STREET AND 812 AND 820 SOUTH ADAMS STREET SEATTLE, WASHINGTON		
PREPARED FOR	WASHINGTON INDUSTRIES ENVIRONMENTAL REMEDIATION TRUST		
DATE 3/28/18	***DRAWN BY*** AM/VPB	***REVIEWED BY*** SPT	***PROJECT NUMBER*** 64001.4



NOTES:

- SOIL
- CONCRETE
- BGS BELOW GROUND SURFACE
- ERD ENHANCED REDUCTIVE DECHLORINATION
- PVC POLYVINYL CHLORIDE

DEPTHS ARE APPROXIMATE; ACTUAL DEPTHS WERE DETERMINED BASED ON SUBSURFACE CONDITIONS

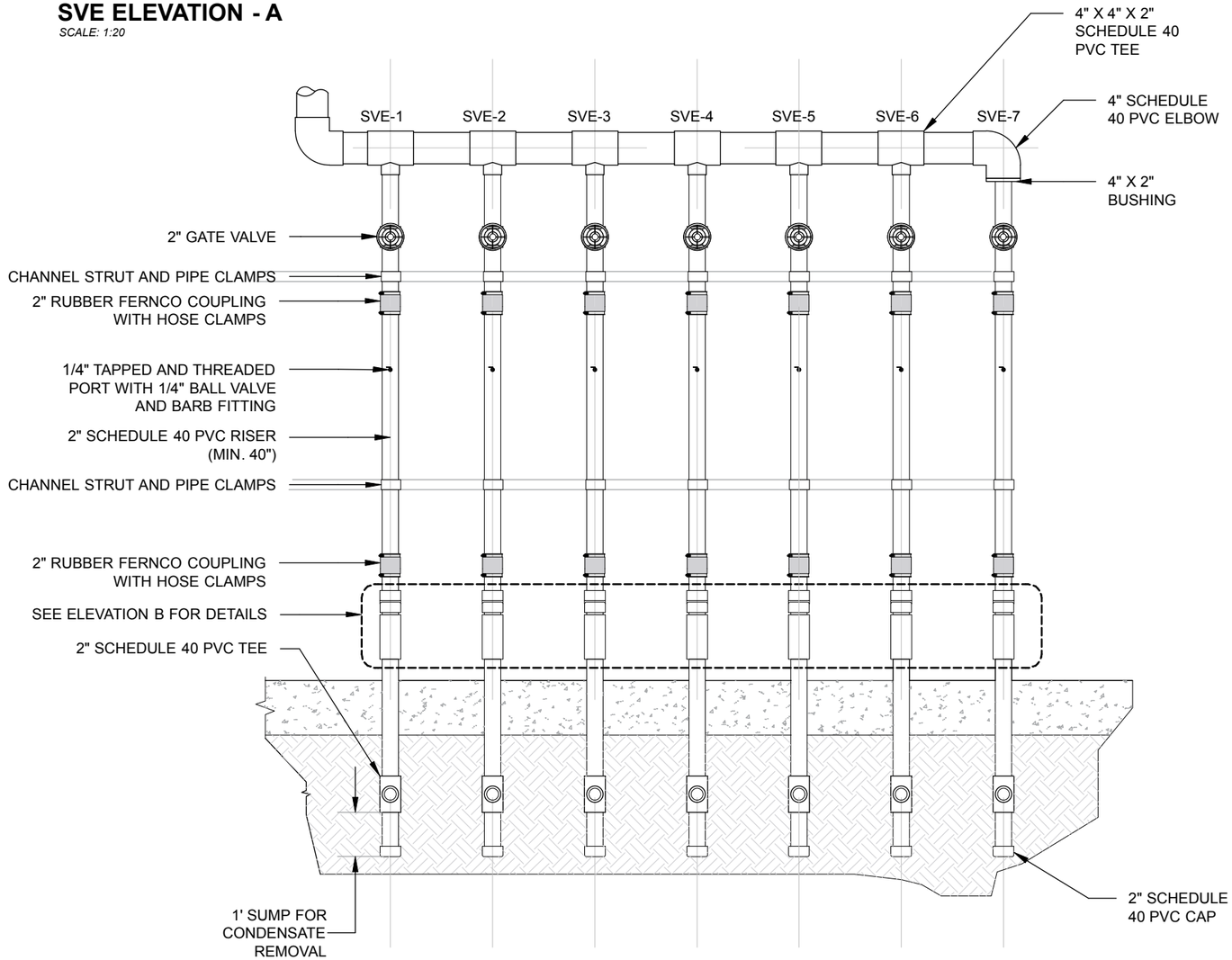
FIGURE 4

ERD INJECTION WELL CONSTRUCTION DETAILS

PREPARED BY	epi ENVIRONMENTAL PARTNERS INC		
REPORT	INTERIM ACTION SYSTEM AS-BUILT AND STARTUP REPORT		
LOCATION	825 SOUTH DAKOTA STREET AND 812 AND 820 SOUTH ADAMS STREET SEATTLE, WASHINGTON		
PREPARED FOR	WASHINGTON INDUSTRIES ENVIRONMENTAL REMEDIATION TRUST		
DATE 3/20/18	***DRAWN BY*** VPB	***REVIEWED BY*** SPT	***PROJECT NUMBER*** 64001.4

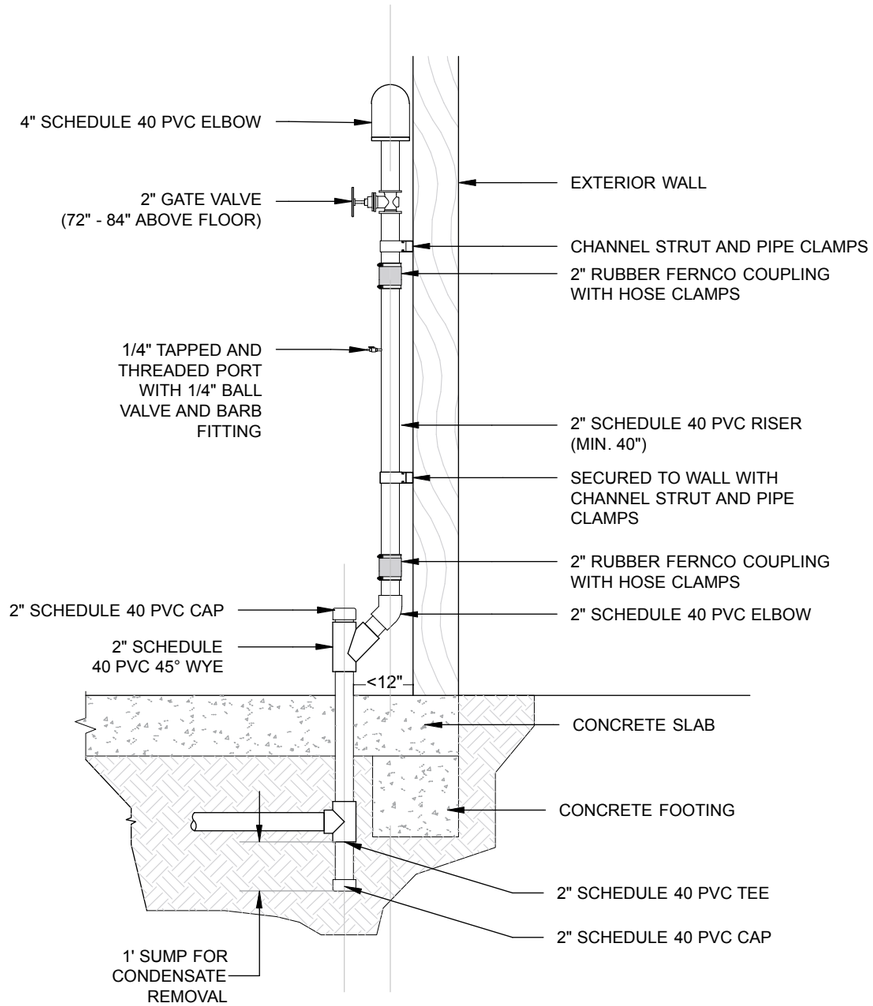
SVE ELEVATION - A

SCALE: 1:20



SVE ELEVATION - B

SCALE: 1:20



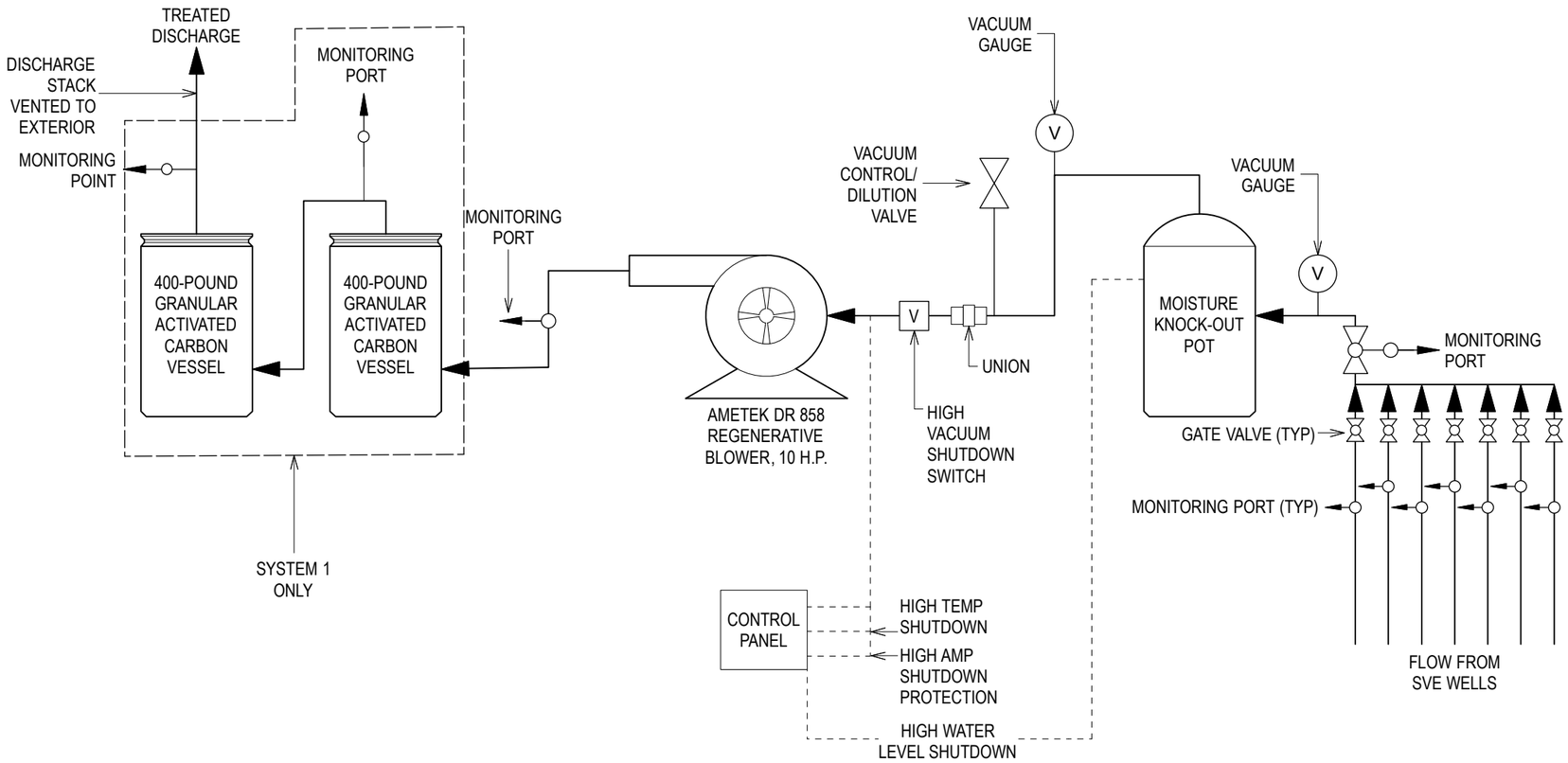
NOTES:

	SOIL
	CONCRETE
SVE	SOIL VAPOR EXTRACTION
PVC	POLYVINYL CHLORIDE

FIGURE 5

SCHEMATIC OF SYSTEM 1 SVE PIPING AND TRENCH DETAILS

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	INTERIM ACTION SYSTEM AS-BUILT AND STARTUP REPORT		
LOCATION	825 SOUTH DAKOTA STREET AND 812 AND 820 SOUTH ADAMS STREET SEATTLE, WASHINGTON		
PREPARED FOR	WASHINGTON INDUSTRIES ENVIRONMENTAL REMEDIATION TRUST		
DATE 3/28/18	***DRAWN BY*** AM	***REVIEWED BY*** SPT	***PROJECT NUMBER*** 64001.4



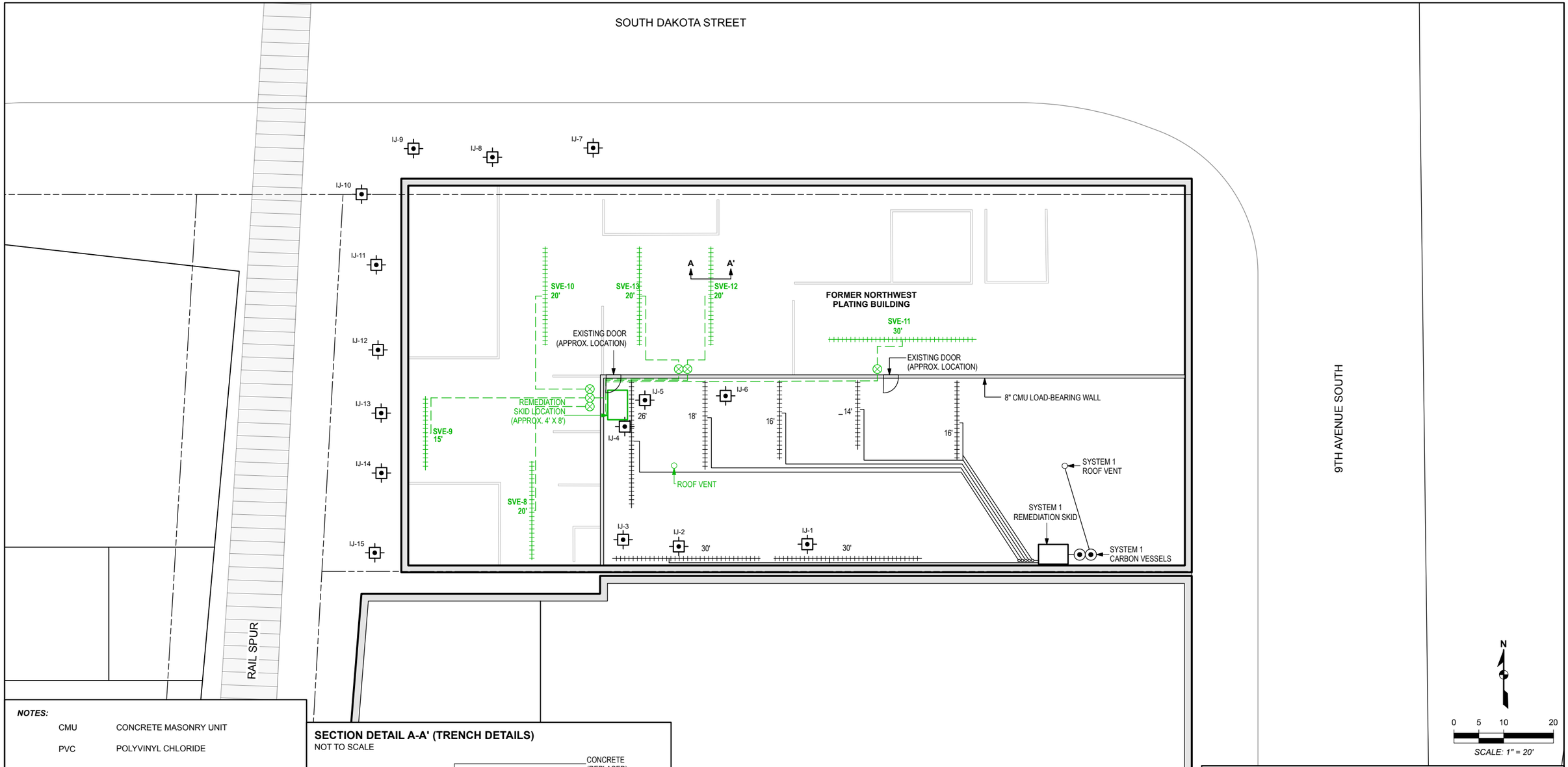
NOTES:

—○→	MONITORING PORT USED FOR FLOW, VACUUM, TEMPERATURE MEASUREMENTS AND/OR SAMPLE COLLECTION
	GATE VALVE
	GATE VALVE
V	VACUUM GAUGE
H.P.	HORSEPOWER
SVE	SOIL VAPOR EXTRACTION

FIGURE 6

SVE TREATMENT SYSTEM
PROCESS AND INSTRUMENTATION DIAGRAM

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	INTERIM ACTION SYSTEM AS-BUILT AND STARTUP REPORT		
LOCATION	825 SOUTH DAKOTA STREET AND 812 AND 820 SOUTH ADAMS STREET SEATTLE, WASHINGTON		
PREPARED FOR	WASHINGTON INDUSTRIES ENVIRONMENTAL REMEDIATION TRUST		
DATE 3/20/18	***DRAWN BY*** AM	***REVIEWED BY*** SPT	***PROJECT NUMBER*** 64001.4



NOTES:

CMU	CONCRETE MASONRY UNIT
PVC	POLYVINYL CHLORIDE
	LOCATION OF ENHANCED REDUCTIVE DECHLORINATION (ERD) INJECTION WELL
VE-8 20'	SYSTEM 2 SOIL VAPOR EXTRACTION (SVE) PIPING AND SCREENED INTERVAL (WITH LENGTH OF SCREEN IN FEET)
	SUMP LOCATION
30'	SYSTEM 1 SVE PIPING AND SCREENED INTERVAL (WITH LENGTH OF SCREEN IN FEET)
	APPROXIMATE PARCEL BOUNDARY
	BUILDING FOOTPRINT AND INTERIOR PARTITIONS
A A'	SECTION DETAIL LOCATION

SECTION DETAIL A-A' (TRENCH DETAILS)

NOT TO SCALE

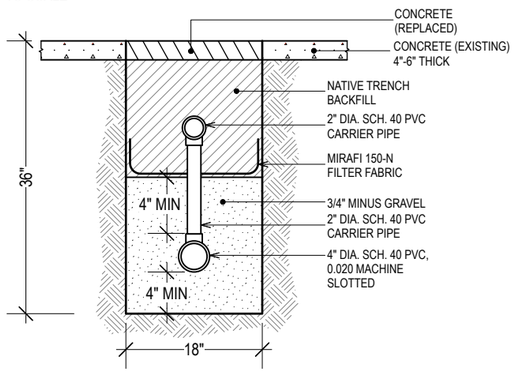


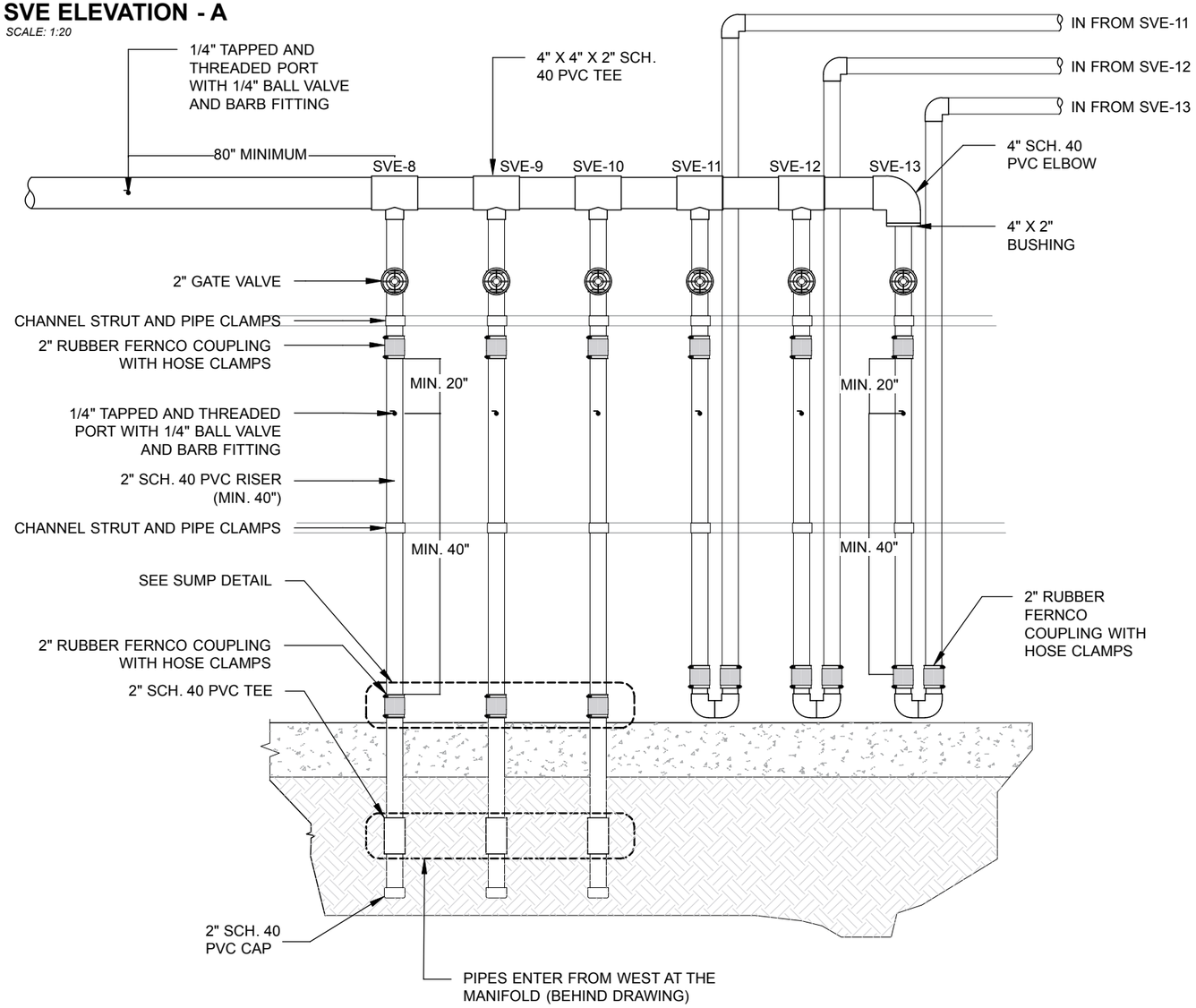
FIGURE 7

ERD AND SVE SYSTEM 2 WELLS AND PIPING LAYOUT

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	INTERIM ACTION SYSTEM AS-BUILT AND STARTUP REPORT		
LOCATION	825 SOUTH DAKOTA STREET AND 812 AND 820 SOUTH ADAMS STREET SEATTLE, WASHINGTON		
PREPARED FOR	WASHINGTON INDUSTRIES ENVIRONMENTAL REMEDIATION TRUST		
DATE 4/3/18	***DRAWN BY*** AM	***REVIEWED BY*** SPT	***PROJECT NUMBER*** 64001.4

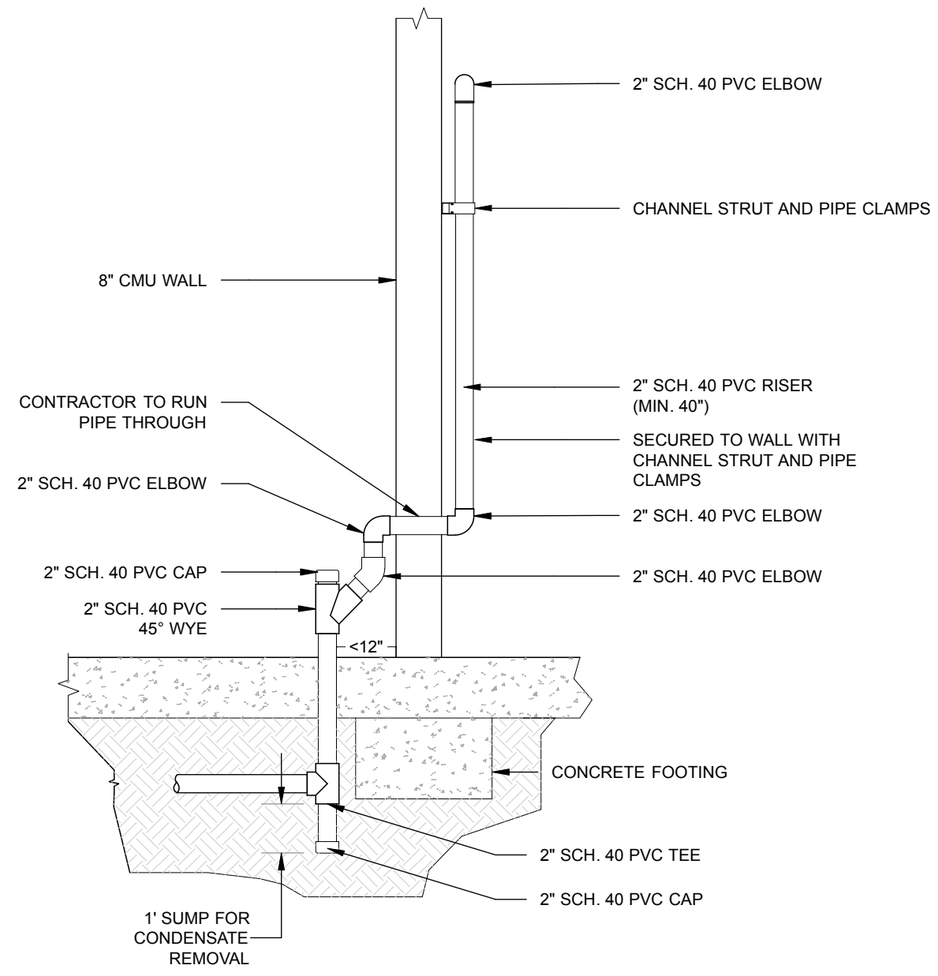
SVE ELEVATION - A

SCALE: 1:20



SVE ELEVATION - B

SCALE: 1:20



NOTES:

	SOIL
	CONCRETE
SVE	SOIL VAPOR EXTRACTION
PVC	POLYVINYL CHLORIDE
CMU	CONCRETE MASONRY UNIT

FIGURE 8

SCHEMATIC OF SYSTEM 2 SVE PIPING AND TRENCH DETAILS

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	INTERIM ACTION SYSTEM AS-BUILT AND STARTUP REPORT		
LOCATION	825 SOUTH DAKOTA STREET AND 812 AND 820 SOUTH ADAMS STREET SEATTLE, WASHINGTON		
PREPARED FOR	WASHINGTON INDUSTRIES ENVIRONMENTAL REMEDIATION TRUST		
DATE 3/20/18	***DRAWN BY*** AM	***REVIEWED BY*** SPT	***PROJECT NUMBER*** 64001.3

Attachment A
Air Discharge General Registration Questionnaire

pscleanair.org
Puget Sound Clean Air Agency

PUGET SOUND CLEAN AIR AGENCY

1904 3rd Ave, Ste 105 Seattle WA 98101-3317
Telephone: (206) 689-4052 or 1-800-552-3565 Fax: (206) 343-7522
www.pscleanair.org

QUESTIONNAIRE FOR REGISTRATION

Facility Name: Former Northwest Plating Facility	
Mailing Address: 1180 NW Maple Street, Suite 310	City, Zip: Issaquah, WA 98027
Facility Address: 825 S. Dakota Street	City, Zip: Seattle, WA 98108
Phone Number: 425-395-0034	Email: seant@epi-wa.com

Please describe your process. What do you make or do?

We are installing a soil vapor extraction system to address chlorinated solvents (primarily trichloroethylene [TCE]) in soil at the former electroplating facility.

How much do you produce annually? How many hours of operation is this based on?

300 pounds of toxic air pollutants (estimated) based on 8,760 hours of operation per year.

PRODUCTION EQUIPMENT (include combustion equipment like boilers, but do not include office equipment like computers)

Type of Equipment *	Equipment Maximum Production Capacity	Type of Air Pollution Control Device (if applicable) *	Control Device Air Flow Rate (cfm) & Diameter of Duct (in)*	Year Equipment & Control Installed
Ametek Rotron Model # DR 858 BB72W Regenerative Blower	380 CFM	Activated carbon adsorption	300 cfm/3"	2016

* On the back of this form you will find a sample list of the types of equipment and air pollution controls that should be listed

CERTIFICATION

I, the undersigned, do hereby certify, that the information contained in this questionnaire is, to the best of my knowledge, accurate and complete.

Signature

May 3, 2017
Date

Sean Trimble, Senior Geologist
Type or Print Name & Title

425-395-0034/seant@epi-wa.com
Phone & Email

Puget Sound Clean Air Agency personnel will review the information you submitted and will contact you regarding whether registration and/or permits for your equipment are needed.

pscleanair.org
Puget Sound Clean Air Agency

PUGET SOUND CLEAN AIR AGENCY

1904 3rd Ave, Ste 105 Seattle WA 98101-3317
Telephone: (206) 689-4052 or 1-800-552-3565 Fax: (206) 343-7522
www.pscleanair.org

QUESTIONNAIRE FOR REGISTRATION

Facility Name: Former Northwest Plating Facility	
Mailing Address: 1180 NW Maple Street. Suite 310	City, Zip: Issaquah 98027
Facility Address: 825 S. Dakota Street	City, Zip: Seattle 98108
Phone Number: 425-395-0034	Email: seant@epi-wa.com

Please describe your process. What do you make or do?

We are installing a second soil vapor extraction system to remediate chlorinated solvents (primarily trichloroethylene [TCE]) in soil at a former electroplating facility.

How much do you produce annually? How many hours of operation is this based on?

Less than 100 pounds of toxic air pollutants based on 8760 hours of operation annually.

PRODUCTION EQUIPMENT (include combustion equipment like boilers, but do not include office equipment like computers)

Type of Equipment *	Equipment Maximum Production Capacity	Type of Air Pollution Control Device (if applicable) *	Control Device Air Flow Rate (cfm) & Diameter of Duct (in)*	Year Equipment & Control Installed
Amtek Rotron Model # DR 858 BB72W Regenerative Blower	380 CFM	NA		2017

* On the back of this form you will find a sample list of the types of equipment and air pollution controls that should be listed

CERTIFICATION

I, the undersigned, do hereby certify, that the information contained in this questionnaire is, to the best of my knowledge, accurate and complete.

Sean Trimble — Signature

10/12/2017 — Date

Sean Trimble, Sr Geologist — Type or Print Name & Title

(425) 395-0034 seant@epi-wa.com — Phone & Email

Puget Sound Clean Air Agency personnel will review the information you submitted and will contact you regarding whether registration and/or permits for your equipment are needed.

Attachment B
Soil Boring Logs and System Well Construction Details

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-1

SITE ADDRESS	CLIENT:	CASING MATERIAL AND SIZE:
825 South Dakota Street, Seattle, WA	**Washington Industries**	**2-Inch PVC Sch. 40**
DRILLING CONTRACTOR:	PROJECT #:	SCREEN SIZE:
Holocene	**64001**	**0.020-Inch Slot**
DRILLING EQUIPMENT:	DATE:	SCREEN INTERVAL:
Dietrich D-50 Turbo	**6/20/16**	**6-15 ft bgs**
DRILLING METHOD:	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK:
Hollow-Stem Auger		**Silica Sand**
LOGGED BY: / BOREHOLE SIZE:	TOTAL DEPTH:	FILTER PACK INTERVAL:
C. McFadden / **12-Inch**	**15'**	**5-15 ft bgs**

Depth (feet)	USCS	Description (USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other)	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0	SP	POORLY-GRADED SAND WITH GRAVEL; dark brown; moist; mostly medium sand with minor gravel.					Flush Monument 2-Inch male camlock fitting
2							4-Inch PVC Casing
4							Hydrated Bentonite
6							
8		SILTY SAND; gray; wet; mostly fine sand with minor silt.					Silica Sand
10							
12	SM	Shell fragments					0.020-Inch Slot Screen
14							
		End of Borehole					
16							
18							
20							

NOTES: Soil observed through auger flights.

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-2

SITE ADDRESS **825 South Dakota Street, Seattle, WA**	CLIENT: **Washington Industries**	CASING MATERIAL AND SIZE: **2-Inch PVC Sch. 40**
DRILLING CONTRACTOR: **Holocene**	PROJECT #: **64001**	SCREEN SIZE: **0.020-Inch Slot**
DRILLING EQUIPMENT: **Dietrich D-50 Turbo**	DATE: **6/20/16**	SCREEN INTERVAL: **6-15 ft bgs**
DRILLING METHOD: **Hollow-Stem Auger**	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: **Silica Sand**
LOGGED BY: **C. McFadden** / BOREHOLE SIZE: **12-Inch**	TOTAL DEPTH: **15'**	FILTER PACK INTERVAL: **5-15 ft bgs**

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0	SP	POORLY-GRADED SAND WITH GRAVEL; dark brown; moist; mostly medium sand with minor gravel.					Flush Monument 2-Inch male camlock fitting
2							4-Inch PVC Casing
4							Hydrated Bentonite
6							
8	SM	SILTY SAND; gray; wet; mostly fine sand with minor silt.					Silica Sand
10							
12		Shell fragments	25				0.020-Inch Slot Screen
14							
		End of Borehole	60				
16							
18							
20							

NOTES: Soil observed through auger flights and limited sampling.

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-3

SITE ADDRESS **825 South Dakota Street, Seattle, WA**	CLIENT: **Washington Industries**	CASING MATERIAL AND SIZE: **2-Inch PVC Sch. 40**
DRILLING CONTRACTOR: **Holocene**	PROJECT #: **64001**	SCREEN SIZE: **0.020-Inch Slot**
DRILLING EQUIPMENT: **Dietrich D-50 Turbo**	DATE: **6/20/16**	SCREEN INTERVAL: **6-15 ft bgs**
DRILLING METHOD: **Hollow-Stem Auger**	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: **Silica Sand**
LOGGED BY: **C. McFadden** / BOREHOLE SIZE: **12-Inch**	TOTAL DEPTH: **15'**	FILTER PACK INTERVAL: **5-15 ft bgs**

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0	SP	POORLY-GRADED SAND WITH GRAVEL; dark brown; moist; mostly medium sand with minor gravel.					Flush Monument 2-Inch male camlock fitting
2							4-Inch PVC Casing
4							Hydrated Bentonite
6							
8	SM	SILTY SAND; gray; wet; mostly fine sand with minor silt.					Silica Sand
10							
12							0.020-Inch Slot Screen
14		End of Borehole					
16							
18							
20							

NOTES: Soil observed through auger flights

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-4

SITE ADDRESS	CLIENT:	CASING MATERIAL AND SIZE:
825 South Dakota Street, Seattle, WA	**Washington Industries**	**2-Inch PVC Sch. 40**
DRILLING CONTRACTOR:	PROJECT #:	SCREEN SIZE:
Holocene	**64001**	**0.020-Inch Slot**
DRILLING EQUIPMENT:	DATE:	SCREEN INTERVAL:
Dietrich D-50 Turbo	**6/21/16**	**6-15 ft bgs**
DRILLING METHOD:	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK:
Hollow-Stem Auger		**Silica Sand**
LOGGED BY: / BOREHOLE SIZE:	TOTAL DEPTH:	FILTER PACK INTERVAL:
C. McFadden / **12-Inch**	**15'**	**5-15 ft bgs**

Depth (feet)	USCS	Description (USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other)	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0	SP	POORLY-GRADED SAND WITH GRAVEL; dark brown; moist; mostly medium sand with minor gravel.					Flush Monument 2-Inch male camlock fitting
2							4-Inch PVC Casing
4							Hydrated Bentonite
6							
8	SM	SILTY SAND; gray; wet; mostly fine sand with minor silt.					Silica Sand
10							
12							0.020-Inch Slot Screen
14		End of Borehole					
16							
18							
20							

NOTES: Soil observed through auger flights

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-5

SITE ADDRESS **825 South Dakota Street, Seattle, WA**	CLIENT: **Washington Industries**	CASING MATERIAL AND SIZE: **2-Inch PVC Sch. 40**
DRILLING CONTRACTOR: **Holocene**	PROJECT #: **64001**	SCREEN SIZE: **0.020-Inch Slot**
DRILLING EQUIPMENT: **Dietrich D-50 Turbo**	DATE: **6/21/16**	SCREEN INTERVAL: **6-15 ft bgs**
DRILLING METHOD: **Hollow-Stem Auger**	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: **Silica Sand**
LOGGED BY: **C. McFadden** / BOREHOLE SIZE: **12-Inch**	TOTAL DEPTH: **15'**	FILTER PACK INTERVAL: **5-15 ft bgs**

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0	SP	POORLY-GRADED SAND WITH GRAVEL; dark brown; moist; mostly medium sand with minor gravel.					Flush Monument 2-Inch male camlock fitting
2							4-Inch PVC Casing
4							Hydrated Bentonite
6							
8	SM	SILTY SAND; gray; wet; mostly fine sand with minor silt.					Silica Sand
10							
12							0.020-Inch Slot Screen
14		End of Borehole					
16							
18							
20							

NOTES: Soil observed through auger flights

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-6

SITE ADDRESS **825 South Dakota Street, Seattle, WA**	CLIENT: **Washington Industries**	CASING MATERIAL AND SIZE: **2-Inch PVC Sch. 40**
DRILLING CONTRACTOR: **Holocene**	PROJECT #: **64001**	SCREEN SIZE: **0.020-Inch Slot**
DRILLING EQUIPMENT: **Dietrich D-50 Turbo**	DATE: **6/21/16**	SCREEN INTERVAL: **6-15 ft bgs**
DRILLING METHOD: **Hollow-Stem Auger**	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: **Silica Sand**
LOGGED BY: **C. McFadden** / BOREHOLE SIZE: **12-Inch**	TOTAL DEPTH: **15'**	FILTER PACK INTERVAL: **5-15 ft bgs**

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0	SP	POORLY-GRADED SAND WITH GRAVEL; dark brown; moist; mostly medium sand with minor gravel.					Flush Monument 2-Inch male camlock fitting
2							4-Inch PVC Casing
4							Hydrated Bentonite
6							
8		POORLY-GRADED SAND; gray; wet; mostly very fine sand with few silt.					Silica Sand
10							
12	SP	Shell fragments	80				0.020-Inch Slot Screen
14							
		End of Borehole	80				
16							
18							
20							

NOTES: Soil observed through auger flights and limited sampling.

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-7

SITE ADDRESS **825 South Dakota Street, Seattle, WA**	CLIENT: **Washington Industries**	CASING MATERIAL AND SIZE: **4-Inch Sch. 40 PVC**
DRILLING CONTRACTOR: **Holocene**	PROJECT #: **64001.6**	SCREEN SIZE: **0.020-Inch Slot**
DRILLING EQUIPMENT: **Dietrich D-50 Turbo**	DATE: **7/18/17**	SCREEN INTERVAL: **4-12.5 ft bgs**
DRILLING METHOD: **Hollow-Stem Auger**	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: **Silica Sand**
LOGGED BY: **J.Sherrod** / BOREHOLE SIZE: **12-Inch**	TOTAL DEPTH: **12.5'**	FILTER PACK INTERVAL: **3.5-12.5 ft bgs**

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0	Concrete	CONCRETE					Flush Monument 2-Inch male camlock fitting
2		POORLY-GRADED SAND; dark brown; damp; mostly sand with trace silt and brick.				1.6	4-Inch PVC Casing
4							Hydrated Bentonite
6	SP	Moist				2.9	
8							Silica Sand
10		SILTY SAND; gray; wet; mostly sand with some silt.					0.020-Inch Slot Screen
12	SM	End of Borehole				1.6	
14							
16							
18							
20							

NOTES: Soil observed through auger flights and limited sampling.

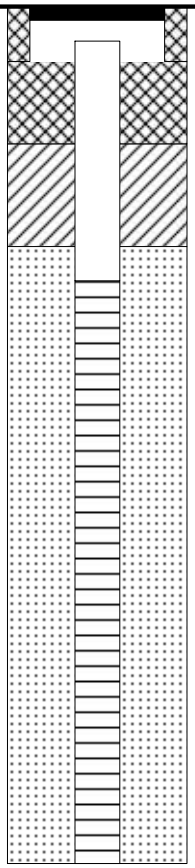
ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-8

SITE ADDRESS	CLIENT:	CASING MATERIAL AND SIZE:
825 South Dakota Street, Seattle, WA	**Washington Industries**	**4-Inch Sch. 40 PVC**
DRILLING CONTRACTOR:	PROJECT #:	SCREEN SIZE:
Holocene	**64001.6**	**0.020-Inch Slot**
DRILLING EQUIPMENT:	DATE:	SCREEN INTERVAL:
Dietrich D-50 Turbo	**7/18/17**	**4-12.5 ft bgs**
DRILLING METHOD:	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK:
Hollow-Stem Auger		**Silica Sand**
LOGGED BY: / BOREHOLE SIZE:	TOTAL DEPTH:	FILTER PACK INTERVAL:
J.Sherrod / **12-Inch**	**12.5'**	**3.5-12.5 ft bgs**

Depth (feet)	USCS	Description (USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other)	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)
0	Concrete	CONCRETE				
2	ML	SILT WITH SAND; gray; damp; mostly silt with few sand.				
4	SP	POORLY-GRADED SAND; brown; damp to moist; mostly sand with trace silt.				8.7
6						3.3
8		Moist				
10						
12	SM	SILTY SAND; gray; wet; mostly sand with some silt				2.3
		End of Borehole				
14						
16						
18						
20						

Well Construction



NOTES: Soil observed through auger flights and limited sampling.

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-9

SITE ADDRESS **825 South Dakota Street, Seattle, WA**	CLIENT: **Washington Industries**	CASING MATERIAL AND SIZE: **4-Inch Sch. 40 PVC**
DRILLING CONTRACTOR: **Holocene**	PROJECT #: **64001.6**	SCREEN SIZE: **0.020-Inch Slot**
DRILLING EQUIPMENT: **Dietrich D-50 Turbo**	DATE: **7/18/17**	SCREEN INTERVAL: **4-12 ft bgs**
DRILLING METHOD: **Hollow-Stem Auger**	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: **Silica Sand**
LOGGED BY: **J.Sherrod** / BOREHOLE SIZE: **12-Inch**	TOTAL DEPTH: **12'**	FILTER PACK INTERVAL: **3.5-12 ft bgs**

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0		POORLY-GRADED SAND WITH GRAVEL; brown; damp; mostly sand with few gravel.					Flush Monument 2-Inch male camlock fitting
2							4-Inch PVC Casing
						12	
4		Increasing silt, dark brown					Hydrated Bentonite
	SP						
6						15	
							Silica Sand
8							
10							0.020-Inch Slot Screen
	SM	SILTY SAND; gray; wet; mostly sand with some silt.				1.1	
12		End of Borehole					
14							
16							
18							
20							

NOTES: Soil observed through auger flights and limited sampling.

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-10

SITE ADDRESS **825 South Dakota Street, Seattle, WA**	CLIENT: **Washington Industries**	CASING MATERIAL AND SIZE: **4-Inch Sch. 40 PVC**
DRILLING CONTRACTOR: **Holocene**	PROJECT #: **64001.6**	SCREEN SIZE: **0.020-Inch Slot**
DRILLING EQUIPMENT: **Dietrich D-50 Turbo**	DATE: **7/17/17**	SCREEN INTERVAL: **4-14 ft bgs**
DRILLING METHOD: **Hollow-Stem Auger**	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: **Silica Sand**
LOGGED BY: **J.Sherrod** / BOREHOLE SIZE: **12-Inch**	TOTAL DEPTH: **14'**	FILTER PACK INTERVAL: **3.5-14 ft bgs**

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0		CONCRETE/GRAVEL					Flush Monument 2-Inch male camlock fitting
		Concrete/Gravel					
2		POORLY-GRADED SAND WITH GRAVEL; dark brown to black; damp; mostly medium sand with few gravel and trace silt.				107.4	4-Inch PVC Casing
4							Hydrated Bentonite
6	SP	Moist				21	
8							Silica Sand
10							0.020-Inch Slot Screen
12	SM	SILTY SAND; gray; wet; mostly fine sand with some silt. Few shell fragments				4	
14		End of Borehole					
16							
18							
20							

NOTES: Soil observed through auger flights and limited sampling.

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-11

SITE ADDRESS **825 South Dakota Street, Seattle, WA**	CLIENT: **Washington Industries**	CASING MATERIAL AND SIZE: **4-Inch Sch. 40 PVC**
DRILLING CONTRACTOR: **Holocene**	PROJECT #: **64001.6**	SCREEN SIZE: **0.020-Inch Slot**
DRILLING EQUIPMENT: **Dietrich D-50 Turbo**	DATE: **7/18/17**	SCREEN INTERVAL: **4-12.5 ft bgs**
DRILLING METHOD: **Hollow-Stem Auger**	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: **Silica Sand**
LOGGED BY: **J.Sherrod** / BOREHOLE SIZE: **12-Inch**	TOTAL DEPTH: **13.5'**	FILTER PACK INTERVAL: **3.5-12.5 ft bgs**

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0	SP-SM	POORLY-GRADED SAND WITH SILT; brown; damp; mostly sand with some silt.					Flush Monument 2-Inch male camlock fitting
2							4-Inch PVC Casing
		Brick, slight odor				7.4	Hydrated Bentonite
4						9.5	
6							
						5.9	Silica Sand
8							
10	SM	SILTY SAND; grayish-brown; wet; mostly sand with some silt.					0.020-Inch Slot Screen
						12	
12		Gray					
		End of Borehole					
14							
16							
18							
20							

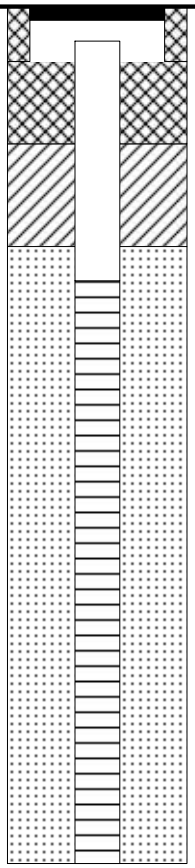
NOTES: Soil observed through auger flights and limited sampling.

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-12

SITE ADDRESS **825 South Dakota Street, Seattle, WA**	CLIENT: **Washington Industries**	CASING MATERIAL AND SIZE: **4-Inch Sch. 40 PVC**
DRILLING CONTRACTOR: **Holocene**	PROJECT #: **64001.6**	SCREEN SIZE: **0.020-Inch Slot**
DRILLING EQUIPMENT: **Dietrich D-50 Turbo**	DATE: **7/18/17**	SCREEN INTERVAL: **4-12.5 ft bgs**
DRILLING METHOD: **Hollow-Stem Auger**	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: **Silica Sand**
LOGGED BY: **J.Sherrod** / BOREHOLE SIZE: **12-Inch**	TOTAL DEPTH: **12.5'**	FILTER PACK INTERVAL: **3.5-12.5 ft bgs**

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0		Large Railroad Ballasts					
		Large Railroad Ballasts					
2	ML	SILT WITH SAND; dark brown; damp; mostly silt with some sand; organic odor.				14	
4		POORLY-GRADED SAND; dark brown; damp; mostly sand with trace gravel.					
6							
8	SP	Moist				11	
10							
12	SM	SILTY SAND; grayish-brown; wet; mostly sand with some silt.				3.1	
		End of Borehole					
14							
16							
18							
20							



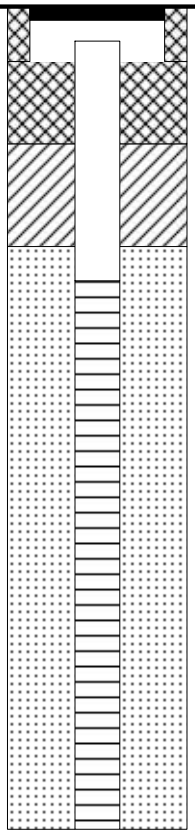
NOTES: Soil observed through auger flights and limited sampling.

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-13

SITE ADDRESS **825 South Dakota Street, Seattle, WA**	CLIENT: **Washington Industries**	CASING MATERIAL AND SIZE: **4-Inch Sch. 40 PVC**
DRILLING CONTRACTOR: **Holocene**	PROJECT #: **64001.6**	SCREEN SIZE: **0.020-Inch Slot**
DRILLING EQUIPMENT: **Dietrich D-50 Turbo**	DATE: **7/18/17**	SCREEN INTERVAL: **4-12 ft bgs**
DRILLING METHOD: **Hollow-Stem Auger**	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: **Silica Sand**
LOGGED BY: **J.Sherrod** / BOREHOLE SIZE: **12-Inch**	TOTAL DEPTH: **12'**	FILTER PACK INTERVAL: **3.5-12 ft bgs**

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0	SM	SILTY SAND; grayish-brown; damp; mostly sand with some silt					Flush Monument 2-Inch male camlock fitting
2		POORLY-GRADED SAND; moist; dark brown; mostly sand with trace silt.				2.8	4-Inch PVC Casing Hydrated Bentonite
4							
6	SP					2.5	
8							Silica Sand
10	SM	SILTY SAND; grayish-black; wet; mostly sand with some silt.				1.7	0.020-Inch Slot Screen
12		End of Borehole					
14							
16							
18							
20							



NOTES: Soil observed through auger flights and limited sampling.

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-14

SITE ADDRESS **825 South Dakota Street, Seattle, WA**	CLIENT: **Washington Industries**	CASING MATERIAL AND SIZE: **4-Inch Sch. 40 PVC**
DRILLING CONTRACTOR: **Holocene**	PROJECT #: **64001.6**	SCREEN SIZE: **0.020-Inch Slot**
DRILLING EQUIPMENT: **Dietrich D-50 Turbo**	DATE: **7/17/17**	SCREEN INTERVAL: **4-12 ft bgs**
DRILLING METHOD: **Hollow-Stem Auger**	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: **Silica Sand**
LOGGED BY: **J.Sherrod** / BOREHOLE SIZE: **12-Inch**	TOTAL DEPTH: **12'**	FILTER PACK INTERVAL: **3.5-12 ft bgs**

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0		POORLY-GRADED SAND; brown; damp; mostly sand with few silt.					Flush Monument 2-Inch male camlock fitting
2							4-Inch PVC Casing
						0.2	
4	SP						Hydrated Bentonite
6		Moist, Increasing silt				0.3	
8							Silica Sand
10	SM	SILTY SAND; gray; wet; mostly sand with some silt.				0.7	0.020-Inch Slot Screen
12		End of Borehole					
14							
16							
18							
20							

NOTES: Soil observed through auger flights and limited sampling.

ENVIRONMENTAL PARTNERS INC

BORING ID: IJ-15

SITE ADDRESS **825 South Dakota Street, Seattle, WA**	CLIENT: **Washington Industries**	CASING MATERIAL AND SIZE: **4-Inch Sch. 40 PVC**
DRILLING CONTRACTOR: **Holocene**	PROJECT #: **64001.6**	SCREEN SIZE: **0.020-Inch Slot**
DRILLING EQUIPMENT: **Dietrich D-50 Turbo**	DATE: **7/17/17**	SCREEN INTERVAL: **4-12 ft bgs**
DRILLING METHOD: **Hollow-Stem Auger**	GROUND SURFACE ELEV. FT AMSL:	FILTER PACK: **Silica Sand**
LOGGED BY: **J.Sherrod** / BOREHOLE SIZE: **12-Inch**	TOTAL DEPTH: **12'**	FILTER PACK INTERVAL: **3.5-12 ft bgs**

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0	GP	POORLY-GRADED GRAVEL; grayish-green; dry; mostly coarse gravel with few sand.					Flush Monument 2-Inch male camlock fitting
2		POORLY-GRADED SAND; brown; damp; mostly sand with few silt.				0.3	4-Inch PVC Casing
4							Hydrated Bentonite
6	SP	Moist, trace brick					
8							Silica Sand
10	SM	SILTY SAND; gray; wet; mostly sand with some silt.				0.4	0.020-Inch Slot Screen
12		End of Borehole					
14							
16							
18							
20							

NOTES: Soil observed through auger flights and limited sampling.

Attachment C
Vendor-Supplied O&M Manual

465274
ENVIRONMENTAL PARTNERS, INC.

Soil Vapor Extraction Systems

Installation and Operation Manual

Rev 02/21/2013 Part # 10804

Table of Contents

Section 1: System Description 3
Function and Theory 3
Soil Vapor Extractor System 3
System Descriptions and Components 4
Section 2: System Installation 9
Section 3: System Operation 11
SVE Operation 11
Control Panel Operation 14
Section 4: System Maintenance 16
SVE Maintenance 16
Section 5: System Troubleshooting 21
SVE 22
Section 6: System Specifications 24
Section 7: System Schematics 28
Section 8: Replacement Parts 30
Appendix A - Decontamination Procedures 33
Warranty and Repair 36

DOCUMENTATION CONVENTIONS

This manual uses the following conventions to present information:

WARNING

An exclamation point icon indicates a **WARNING** of a situation or condition that could lead to personal injury or death. You should not proceed until you read and thoroughly understand the **WARNING** message.

CAUTION

A raised hand icon indicates **CAUTION** information that relates to a situation or condition that could lead to equipment malfunction or damage. You should not proceed until you read and thoroughly understand the **CAUTION** message.

NOTE

A note icon indicates **NOTE** information. Notes provide additional or supplementary information about an activity or concept.

This manual contains the information required to deploy, operate and maintain the Soil Vapor Extraction System supplied. Its use is intended for field technicians, project engineers or anyone responsible for installing, operating or maintaining site remediation equipment.

Section 1: System Description

System Descriptions and Components

SVE System

The Geotech supplied SVE system (Figure 1-1) consists of a (regenerative) vacuum pump/blower, inlet and outlet plumbing, integral air filter/moisture separator, ambient air dilution valve and vacuum gauges and a power disconnect. Systems with control panels (XP and non-XP) come with thermal overload protection or high amp circuits and additional instrumentation can be provided as required.

SVE Components

Blowers

Blowers are available in various sizes. Basic blower specifications and performance curves are provided in Section 6.

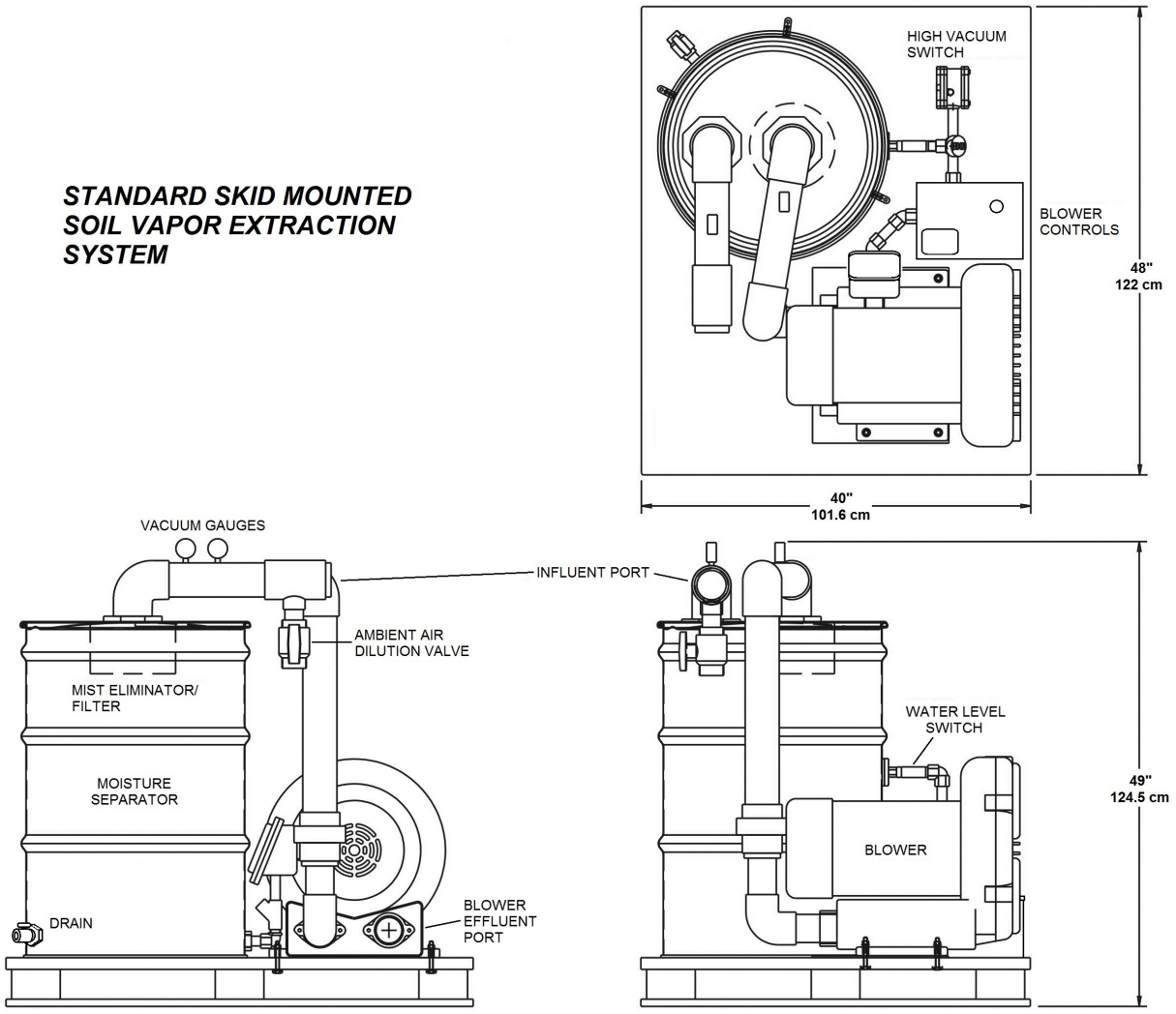


Figure 1-1

Moisture Separator

The moisture separator is positioned between the blower and the extraction well to help protect the blower from corrosion damage caused by excess moisture. In addition, it will protect the end treatment from further contamination. Each moisture separator provides the following features:

- 38 gallon (143.8 L) capacity, steel canister with enamel finish and epoxy coated interior.
- High efficiency cyclonic separation.
- Inherent safe collection design.
- Outfitted with drain for convenient removal of fluids.
- A liquid level float switch that will protect the blower from flooding and shut down the system when the moisture separator is full.

Vacuum Gauges

Vacuum gauges are mounted before and after the air filter for ease of diagnosing a clogged filter. As the filter begins to clog, the difference between gauge readings will increase.

Ambient Air Dilution Valve

The ambient air ball valve is used to adjust the vacuum on the influent side of the blower.

Options

- Single-phase SVE blowers may be supplied with optional power cords and explosion proof plugs.
- Effluent silencer (muffler).
- Effluent temperature gauge.
- Effluent pressure gauge.
- CFM gauge.
- Sample ports.

Control Panel

A basic Geotech supplied SVE system will have a standard ON/OFF/Reset Motor Starter box with auxiliary contacts for alarm switches. These components are housed within a NEMA 4 (non-explosion proof) or a NEMA 7 (explosion proof) enclosure.

When additional controls and logic are required or when interfacing the SVE equipment, Geotech will supply a NEMA 4, GECM Control Panel, designed to operate the SVE systems along with all alarm circuits and fault switches.

A qualified electrician is strongly recommended to provide wiring to and from the remote mount control panel and the systems.

Section 2: System Installation

Disconnect power before opening any enclosure on any system. Only explosion proof systems may be deployed in hazardous locations.

Installation

Location

- Locate and position the unit as desired. Secure the unit to a solid floor or other stable surface keeping the unit relatively level (within 1/8”/3.2 mm per 12”/30.5 cm run.)

- When bolting the unit down all mounting points are to be solidly in contact with the floor before the anchor bolts are tightened. The use of vibration isolators is not required with SVE blowers less than 25 HP in size.

- There should be adequate room around the unit to perform regular maintenance. Adequate ventilation should also be available; Blower(s) generate BTU’s per hour per motor horsepower in heat which needs to be removed. Geotech recommends a 3’ (1 m) space around the skids for heat rejection and ease of maintenance.

Plumbing

- Plumb in the inlet and outlet piping. Size the piping such that the pressure drop encountered during maximum air usage is within an acceptable range.

- Utilize piping materials that are rated for pressure and temperature at which the blowers/compressors will be operating.

- Route the piping such that any moisture that condenses in the piping will run to a low point drain.

- Confirm the installed pipe system meets all applicable building codes.

- SVEs are to be manifolded to the vapor source and the effluent vapor plumbed to a desired location.

Control Valves

- Units are to have a pressure/vacuum relief valve or switch to protect the blower/compressor from over pressure/vacuum or high amps.

Power

- An adequate power source should be available. A qualified electrician is strongly recommended to wire all blower motors and their control panels. Wire power to the power disconnect switch inside the motor starter box, or plug the unit into an explosion-proof receptacle.

- With three phase power systems, jog the motor and determine the rotation; if rotation is incorrect, switch any two leads of the incoming power.

Some rotary vane units will be labeled from the factory noting that the blower should be detached from the motor when determining the rotation. This is important since some units can be damaged with just a slight bit of power applied with an incorrect rotation.

- Confirm all wiring conforms to the National Electrical Code and any other government codes which apply in your area.

Section 3: System Operation

SVE Operation

To ensure proper operation of the system, the vacuum on the influent air should not exceed the manufacturer's high vacuum switch setting. An adjustable high vacuum switch (shown in Figure 1-2) is pre-set at the factory to shut down the blower when the vacuum exceeds the blower rating or nameplate full load amps. Vacuum in excess of the specified values can over heat and damage the blower motor. Monitor the vacuum by referring to the vacuum gauge mounted closest to the blower (or the piping between the drum and AIR IN port of the blower as shown in Figure 1-2.)

The specified maximum vacuum indicated on the blower identification plate assumes an open discharge. Any pressure drop associated with inlet or discharge piping or discharge treatment will also affect blower motor running amperage. Therefore, maximum allowable vacuum will decrease with an increase in discharge pressure requirements (such as use with vapor treatment equipment, i.e.: carbon vessels.)

An adjustable PVC inlet air valve is also provided. This valve should be open on startup and slowly closed until the desired vacuum is attained or maximum recommended vacuum is attained.

System Faults (SVE)

To prevent equipment damage, the SVE System will automatically shut down due to the following conditions:

High Vacuum

- Clogged demister.
- Obstructions (water or debris) in the influent or effluent plumbing.

High Water Level in the Moisture Separator Drum

- Water level in the moisture separator drum has reached capacity.
- Optional transfer pump not removing water.

Blower Motor Thermal Overload (overheating)

- Incorrect setting of vacuum switch.
- Motor failure or fatigue.
- Electrical service providing excess or insufficient voltage.

Current Overload (High Amps)

Motor starters provided with factory control panels will shut the system down when the amp range is exceeded.

- Incorrect setting of vacuum switch.
- Motor failure fatigue.
- Electrical service providing excess or insufficient voltage.
- Amp range setting on motor starter has been altered (consult electrician).

Restarting the Blower

To restart the system after one of the above faults has occurred; first identify and rectify the condition that caused the fault (see Section 5, System Troubleshooting). Once the problem has been corrected restart the blower:

1. Set the switch on the control panel to OFF, or set the main switch to OFF.

    - Systems with an ON/OFF/RESET switch require a RESET.
    - Systems using a GECM Control Panel (optional) require that the HOA (HAND/OFF/AUTO) switch be set to OFF and the RESET button depressed to clear the fault.

2. Set the switch on the control panel to ON, or set the main switch to ON.

    - With a GECM, set the HOA switch to AUTO.

Control Panel Operation

Before wiring the control panel, check to make sure the electrical supply matches the specifications of the system and components. Utilize a volt meter to verify the **actual power** supplied. Do not rely on the power supply stated on the electrical supply panel since actual voltage provided can vary widely.

- Wire in all associated motors and control instruments with the proper gauge wire recommend by NEC handbook.

- Double check for correct rotation on all equipment prior to putting the equipment into service.

- Activate all control instrumentation to ensure functionality of switches and equipment protection prior to full operation of the system.

Single System Unit (Basic ON/OFF/RESET Controls)

On stand-alone SVE systems, Geotech may provide an ON/OFF/RESET motor starter (within a NEMA 4 or NEMA 7 enclosure) with auxiliary contacts to operate high temperature switches, high pressure/vacuum switches, a water high level switch, thermal overload, etc. For these systems, turn ON/OFF the system via the ON/OFF/RESET switch.

A system may shut down in the event of an alarm condition. On panels with an alarm light, the alarm light will illuminate when any of these conditions exist. Simply turn OFF the switch, then set the switch to RESET to reset the system. Prior to turning the system back on, identify and rectify the alarm condition. Turning the system on and having repeated shut downs due to alarm conditions may harm the motor and other electrical components of the system.

Single and Dual System Controls (GECM Control Panel)

Geotech can provide you with a GECM control panel to operate and monitor all equipements at one site. Each device is controlled with a HAND/OFF/AUTO (HOA) switch. During normal operation, all devices are set to AUTO for continuous run time. Should a system fault (alarm condition) occur, a RESET of the panel will be needed prior to turning the equipment back on. The HAND position is used to temporarily apply power to a system, such as to verify rotation or when trouble shooting a problem.

If your system comes with the Geotech GECM Control Panel, the following description is a typical logic process for SVE operating conditions:

- The standard GECM controller has an LCD screen to identify operating and alarm conditions.
- On the SVE portion, a Water High Level Switch will shut down the SVE and the optional alarm light will illuminate. The alarm condition is set up as a latching control, i.e.; a manual reset is required.
- On the SVE portion a High Vacuum Switch will shut down the SVE. The alarm condition is set up as a latching control, i.e.; a manual reset is required. In addition, the SVE motor thermal overloads are tied to this alarm switch. Therefore, the alarm switch will illuminate and shutdown the system in the event of a blower motor thermal overload.
- An optional Run Light will illuminate when a respective system is operating.
- Optional Elapsed Time Meters can monitor run time for each of the respective systems.

For additional information refer to the Geotech GECM User Manual and Field Wiring Diagram along with the SVE User Manual and system wiring diagrams provided with new installations.

Section 4: System Maintenance

SVE Maintenance

The SVE is designed to provide you years of trouble-free operation when the equipment is properly maintained. Some basic maintenance items are listed in the following table:

Frequency of Maintenance Tasks/Monthly Calendar												
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Check vacuum gauges to ensure that max. vacuum is not exceeded.		●		●		●		●		●		●
Inspect air filter on optional CFM gauge for moisture. Drain high vacuum switch.	●	●	●	●	●	●	●	●	●	●	●	●
Check motor amp draw. Check all switches for proper operation. Check all wiring for loose connections.			●			●			●			●
Check water level within the moisture separator drum. Check operation of optional transfer pump.	●	●	●	●	●	●	●	●	●	●	●	●
Check for loose fittings and bolts.			●			●			●			●
Check moisture separator for pressure drop across filter/moisture demister (pressure drop should not exceed 6” H^2O (0.44 in Hg). under normal operating conditions.)			●			●			●			●

Cleaning the intake filter/demister assembly (for standard 55 gallon drum)

Optimum performance of the SVE system is possible only with regular maintenance of the intake filter/demister. Clean the filter/demister assembly inside the moisture separator whenever the vacuum gauge readings indicate significant clogging has occurred. Refer to Figure 4-1 and the following outlined procedure:

1. Loosen and remove the drum lid retaining clamp.

2. Loosen and disconnect the 3 inch union between the moisture separator drum and the blower.

3. Mark and detach any CFM lines (when applicable).

4. Lift the cover off the drum and lay it down with the demister assembly facing up.

5. Remove the demister from the holding tube.

6. Shake excess liquid from the demister unit and wash with warm soap and water.

7. Reassemble the moisture separator.

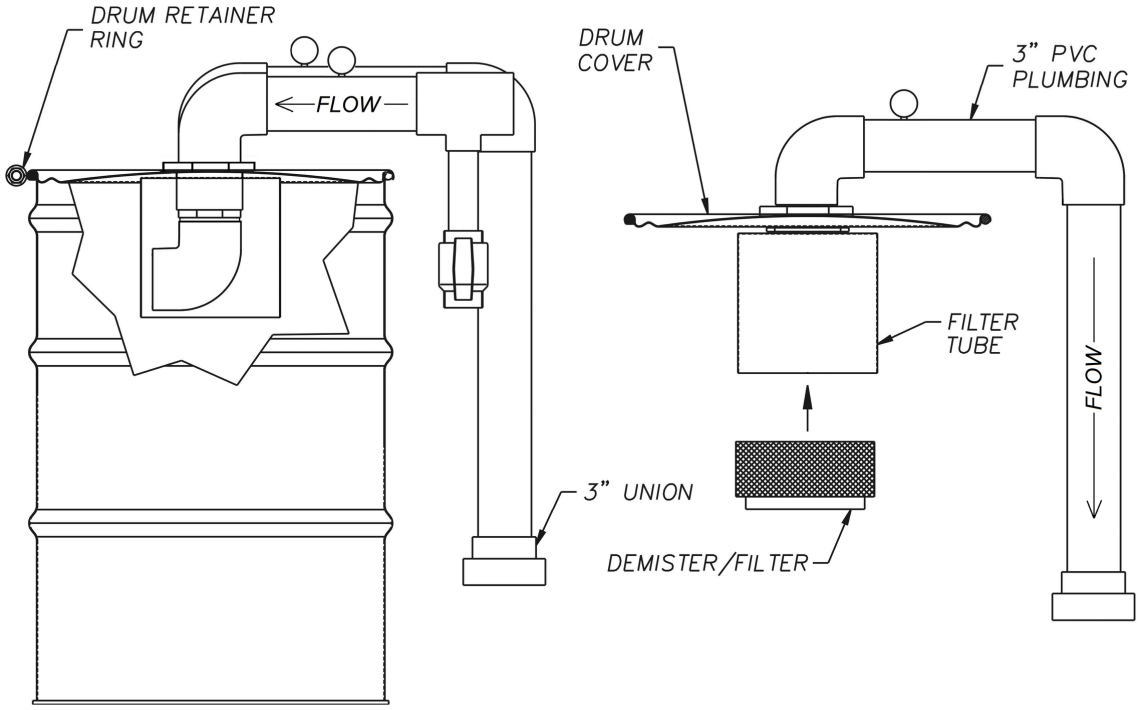


Figure 4-1

Drain Vacuum (Pressure) Switch

The SVE HI vacuum switch should be drained on a regular basis. This is particularly important in applications where excessive condensation may cause a buildup of moisture within the switch. To drain the switch, rotate the vent drain plug (underneath) one turn in a clockwise direction and then return the plug to its original position.

Drain CFM Gauge Air Filter

The filter on the CFM gauge should be checked on a regular basis and drained if necessary. Drain the filter by turning the drain screw (underneath) in a clockwise direction (when viewed from the bottom of the filter) Close the drain by turning the screw counter-clockwise.

Check Poly Tubing

Regularly check the condition of the poly tubing going from CFM gauge to Pitot tube and between the HI vacuum switch and the quick connect fitting on the influent air piping. A cut, kink or loose tubing connection can cause operational problems with the SVE.

Operation of the High Vacuum Switch

Though the High Vacuum switch is called out as a "pressure" switch, and can be used as such, its application on the SVE system is to be used as a “vacuum” (negative pressure) switch. When you see the word "pressure", assume "vacuum" unless the step is defining a physical port on the switch itself, in which case the word "pressure" is used.

SVE “High Vacuum” (pressure) switch

The High Vacuum switch used is always wired for "normally closed". The switch will remain closed until you adjust the vacuum setting screw to have the switch “open” at a specific vacuum (negative pressure) reading (in inches) as shown on the vacuum gauge (normally the gauge on the influent piping closest to the blower AIR IN port.) This is achieved by turning the set screw clockwise (CW) for a higher setting, counter-clockwise (CCW) for a lower setting. When this setting is reached, the electrical contact will “open”, breaking the circuit (and in most applications, shutting the system down).

High Vacuum Switch Setting

High Vacuum switch is pre-set at the factory. It is normally set 2” H^2O (0.15 in Hg) below the vacuum gauge reading for the maximum amps called out on the blower nameplate. The purpose of this setting is to shut down the system and prevent over-amping of the blower (in case of clogging to the influent air path) while maximizing the air flow, or CFM. Before proceeding with an adjustment, read the literature provided that came with the switch from the manufacturer.

When adjusting the HI vacuum switch, use the following steps either to verify the current setting, or to make an adjustment to the HI vacuum switch (such as after replacing a faulty switch):

1. Turn off the blower.
2. Disconnect the influent air connection to the lid, usually right before the ball valve in place.
3. Disconnect the effluent air connection to the blower (AIR OUT connection.)
4. Close the PVC valve to the influent air pipe. Close any openings to the top of the drum and to the PVC drain valve at the bottom of the drum.
5. Disconnect the two wires within the High Vacuum switch and connect them together. This will prevent the system from shutting down while setting the switch.
6. Attach an ohm meter to the two points on the switch to verify when it is open or closed.

If over-amping is a concern then it may be necessary to have an electrician open the blower motor electrical box and attach an amp probe to each power leg to verify that the name plate amps are not exceeded while adjusting High Vacuum switch.

7. Turn on the blower. Proceed with one of the following options:

Option 1 - Verifying the current setting of an existing High Vacuum switch

1. With the blower running, gradually cover the 3" inlet pipe with a hard flat object (not your hand) and monitor the increase in vacuum on the vacuum gauge closest in-line to the blower AIR IN port. Keep an eye on the amp reading while doing so.
   When the ohm meter shows "open" the inches shown on the gauge will be your current setting. If the ohm meter does not show an "open" after reaching the correct inch setting or upon reaching the name plate high amps, then the switch is either set too high or the switch is stuck (a stuck switch needs to be replaced.)
2. Adjust the switch by turning the Set Range screw on top CCW for fewer inches, CW for more inches.
3. The switch will be set when the circuit "opens" at the correct setting **(without over amping the blower.)**
4. Turn the blower off and restore all electrical connections.
5. If you have a GECM Control Panel, turn the unit back on and cover the inlet pipe to verify that the GECM will turn off the system with the high vacuum setting (this will activate after 5 seconds.)
6. Re-connect all piping and restore the system for operation.

Option 2 - Adjusting the setting for a new High Vacuum switch

1. Turn the set screw all the way CCW. The switch will show "closed" on the ohm meter.
2. With the blower running, gradually cover the 3" inlet pipe with a hard flat object (not your hand) until the Vacuum gauge reaches the desired setting **(do not let the amps exceed the blower specifications).** With the switch all the way CCW, the meter should already show an "open" circuit.
3. Leave the cover in place on the inlet pipe. Using a flathead screwdriver, turn the set screw CW until the switch "closes". This will "ball park" the adjustment. Turn the set screw back a few turns and continue to "fine-tune" the switch by removing and **slowly covering** the inlet pipe to verify the current setting. Repeat and adjust the set screw as necessary.
4. The switch will be set when the circuit "opens" at the correct setting **(without over amping the blower.)**
5. Turn the blower off and restore all electrical connections.
6. If you have a GECM Control Panel, restore the power and cover the inlet pipe to verify that the GECM will turn off the system with the high vacuum condition (this will activate after 5 seconds.)
7. Re-connect all piping and restore the system for operation.

Transfer Pump

If SVE system includes an optional transfer pump, the following routine maintenance tasks will help to ensure continuous service from the pump. Read the manufacturer supplied User Manual before proceeding.

- Check the flow rate weekly to ensure that the cycling frequency is minimized.
- Inspect hoses and wiring quarterly for cracks, cuts or abrasions.

Section 5: System Troubleshooting

Your SVE systems are designed for years of continuous trouble free operation. If you encounter problems when using either system, use the following guidelines before contacting Geotech for service.

These procedures are meant to be carried out by personnel qualified to work on electrical circuitry. If in doubt, obtain the services of a qualified electrician.

Getting Help

- Read the entire manual and become thoroughly familiar with all system components before intitiating any of the following troubleshooting procedures.

- If the troubleshooting procedures in this section indicate a component failure, prepare a written list of all problems encountered while operating the equipment, then call Geotech Environmental Equipment for assistance.

Service Locations

Geotech Service personnel are trained on all aspects of the equipment and are dedicated to help you maximize the efficiency and cost effectiveness of your SVE system. For technical support call our Geotech Service office.

Geotech Environmental Equipment, Inc.
2650 East 40th Avenue
Denver, CO 80205
Toll Free Phone: (800) 833-7958
Commercial Phone: (303) 320-4764
Fax: (303) 322-7242
www.geotechenv.com

Troubleshooting Procedures - SVE

If the blower will not run:

1. Confirm that power is reaching the motor.
   - Check all wiring and connections for breaks, faults, or abrasions.
   - Check for power outages at the service.
   - Check fuses.
   - Check for a tripped motor starter.

Use the following steps to determine if the motor/blower has shut down due to any of the fault conditions discussed in Section 3:

2. Check for high liquid level in the moisture separator drum. If the High Liquid Level switch has engaged and has shut down the system, drain the drum by opening the valve located at the base (see Figure 1-2). Restart the blower using the procedures outlined in Section 3. If an optional transfer pump is included with the SVE, verify functionality of the pump and the optional level control probe. Check for any potential plugging due to sediment around the discharge piping from the vessel.

3. Inspect the demister filter inside the moisture separator drum. A blocked filter will engage the High Vacuum switch. If the filter is dirty, clean as indicated in Section 4.

4. If the High Vacuum switch setting is shutting the system off prematurely, then adjust the setting as described in Section 4.

5. If an optional vapor phase carbon is utilized in the process flow, verify the carbon vessel's pressure drop is not in excess of the vessel manufacturer's performance guide and does not exceed the blower's differential pressure capability.

6. Restart the blower (as described in Section 3). Monitor the current draw using a voltmeter and compare your reading with the motor nameplate amps. Verify that the current is within acceptable limits. If the motor is drawing excess current, please contact Geotech.

If your system does not respond to any of the procedures above, the motor has probably shut down due to thermal overload. Overworking the blower can cause thermal overload; or it may be a symptom of motor fatigue. Allow the motor to cool, and then restart the system using the steps outline in Section 3.

If the blower continues to overheat, monitor the vacuum gauges and determine if the blower is exceeding its maximum vacuum limit. If the blower has not exceeded its vacuum limit, please contact Geotech for further assistance.

Section 6: System Specifications

SVE

Applications: Well point or trench type vapor barriers.
Product Recovery: Volatile Organic Compounds
Dimensions: 40” L x 48” W x 65” H (101.6cm L x 121.9cm W x 165.1cm H)
Blower:

Type:	Regenerative blower
Flow Rate:	Up to 250 CFM (7.1 CMM)
Voltage:	115/230/460
Phase:	single or three phase
HP:	1 – 75 (standard is 1 – 10)

New SVE Specification Sheet

Blower/Motor Type:

Model: ___DR858BB72W_____ S/N: ___F1508266080_____

Power Requirements:

__230___ Voltage ____3___ Phase ___10___ HP ___60___ Hz

High Vacuum Switch set to: ___98___ inches (2” H^2O / 0.15 in Hg) under motor nameplate amps)

High Amp on Motor Nameplate: _28 Amps_

Standard Accessories:

Water Level Switch (Y) / N High Vacuum Switch (Y) / N

Thermal Over Loads on Blower Y / (N) Vacuum Gauges (Y) / N

Options:

Temperature Gauge Y / (N) CFM Gauge w/Pitot Tube Y / (N)

Transfer Pump Y / (N) Water Level Probe Y / (N)

GECM Control Panel Y / (N) GECM S/N: _____

Cable Length:

Power Cord Length: ___NA_____ ft./m

Power requirements SVE:

HP	VOLTAGE	PHASE	ICFM / CMM	INCHES H_2O / INCHES OF MERCURY
1	115/230	1	0-95 / 0-2.7	50 / 3.68
1.5	230	1	0-115 / 0-3.3	58 / 4.27
2	230	1	30-145 / .8-4.1	70 / 5.15
2	230/460	3	80-145 / 2.3-4.1	50 / 3.68
3	230/460	1 or 3	30-185 / .8-5.2	72 / 5.30
5	230/460	3	85-280 / 2.4-7.9	82 / 6.03
7.5	230/460	3	80-325 / 2.3-9.2	93 / 6.84
10	230/460	3	125-380 / 3.5-10.8	93 / 6.84

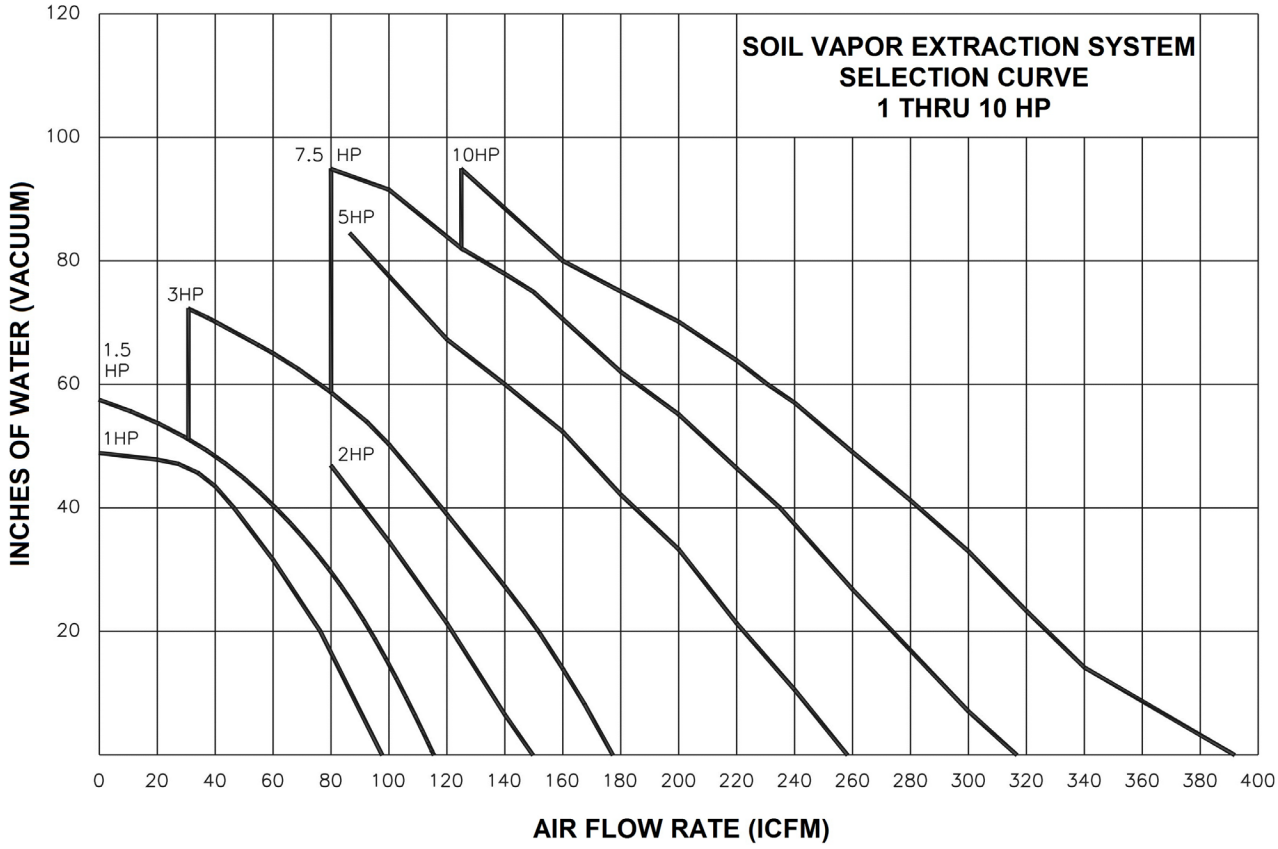


Figure 6-1

SVE Wiring Diagrams

All SVE systems using a GECM Control Panel will have a GECM Field Wiring Diagram provided detailing all wire connections to the unit. This diagram can be updated or replaced as needed by Geotech.

Without the use of a GECM Control Panel, the on-site electrician will need to wire the air pump/blower motor to an appropriate motor starter and power service. Systems with a basic motor starter box will have wiring diagrams detailing the component wiring.

The wiring from the SVE vacuum switch and water level switch, along with the motor thermals (when supplied) and the high amp circuit from the motor starter, must be integrated as a system shutdown component to the motor starter circuit in order to terminate power in the event of equipment failure.

Geotech can also build unit specific start boxes for use with the SVE, transfer pump, and accessories. Contact Geotech for more information on system requirements. Figure 6-2 contains basic wiring for single and three phase blowers (examples do not include junction box integration).

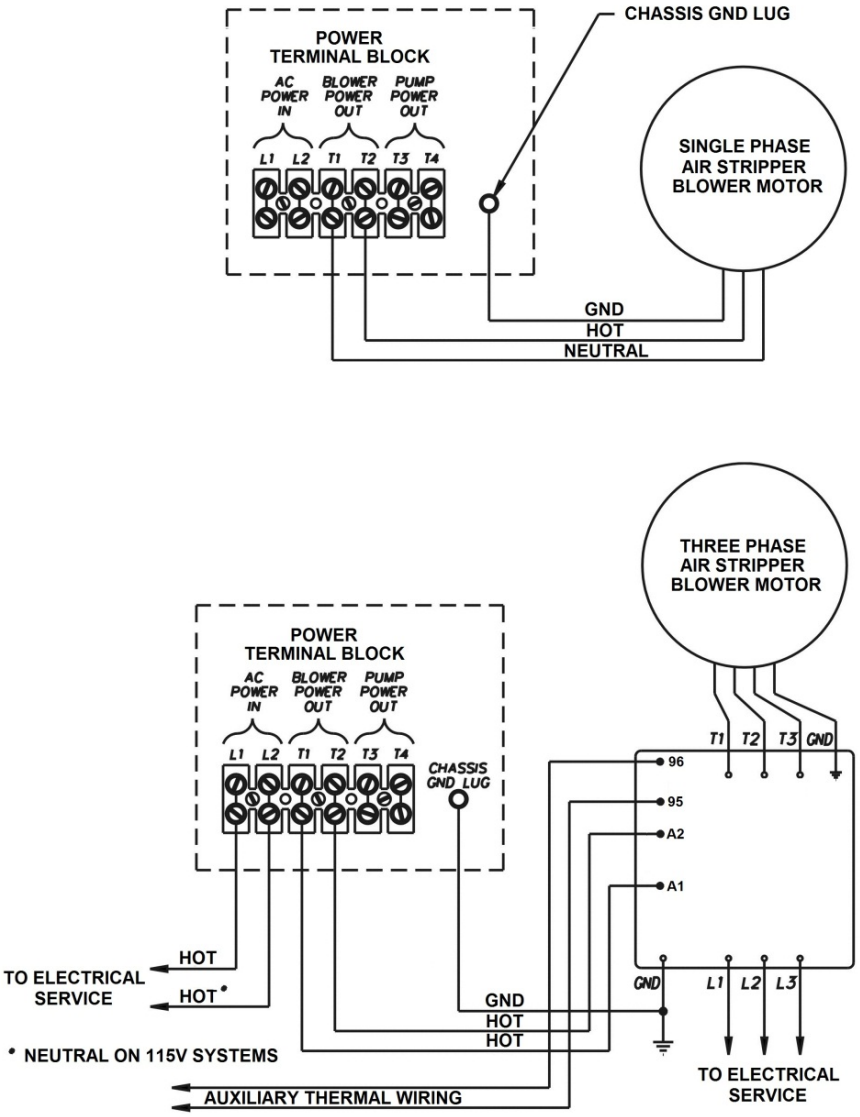


Figure 6-2 – Basic Single and Three Phase Wiring Diagrams

Section 7: System Schematics

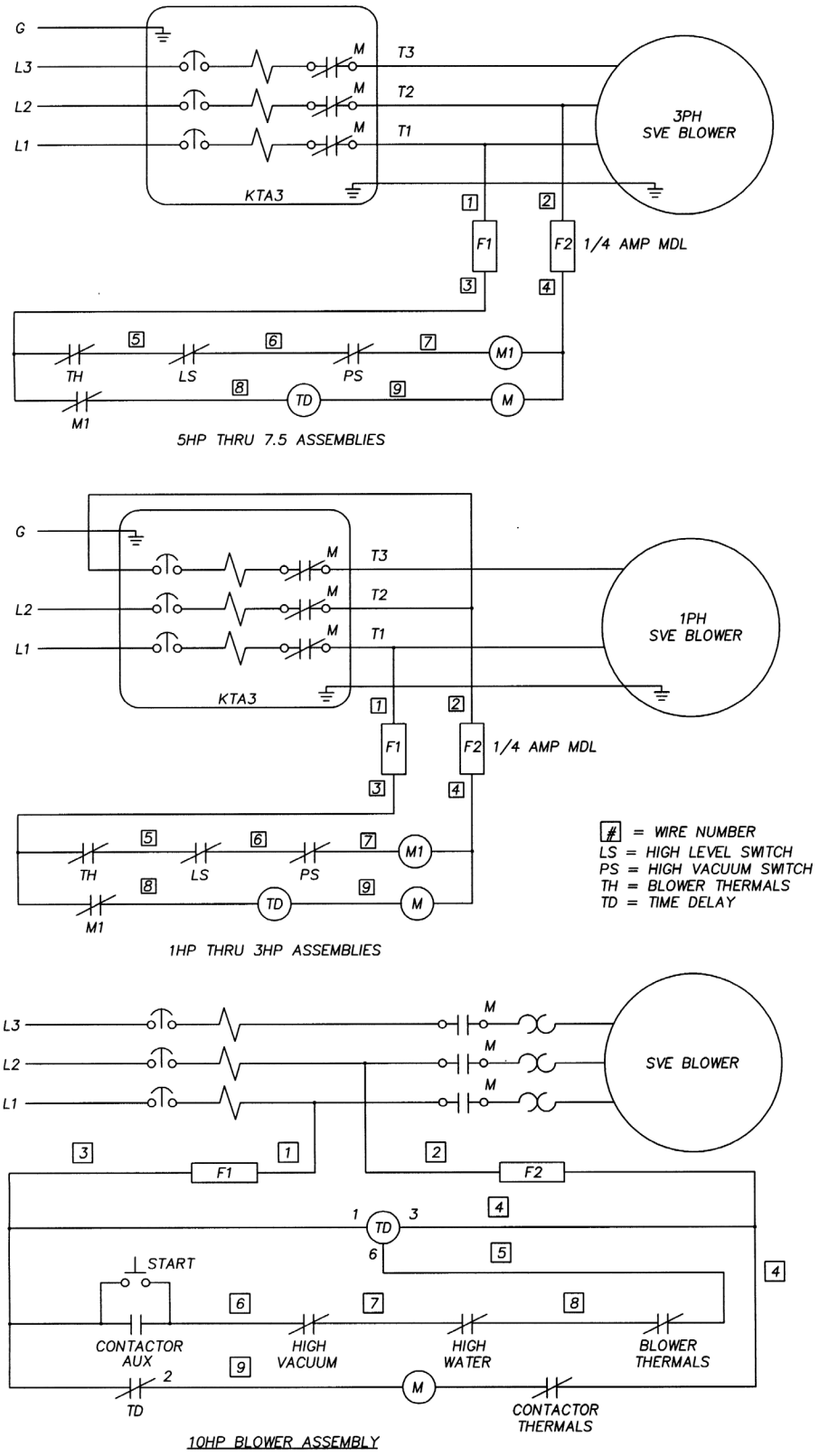


Figure 7-1

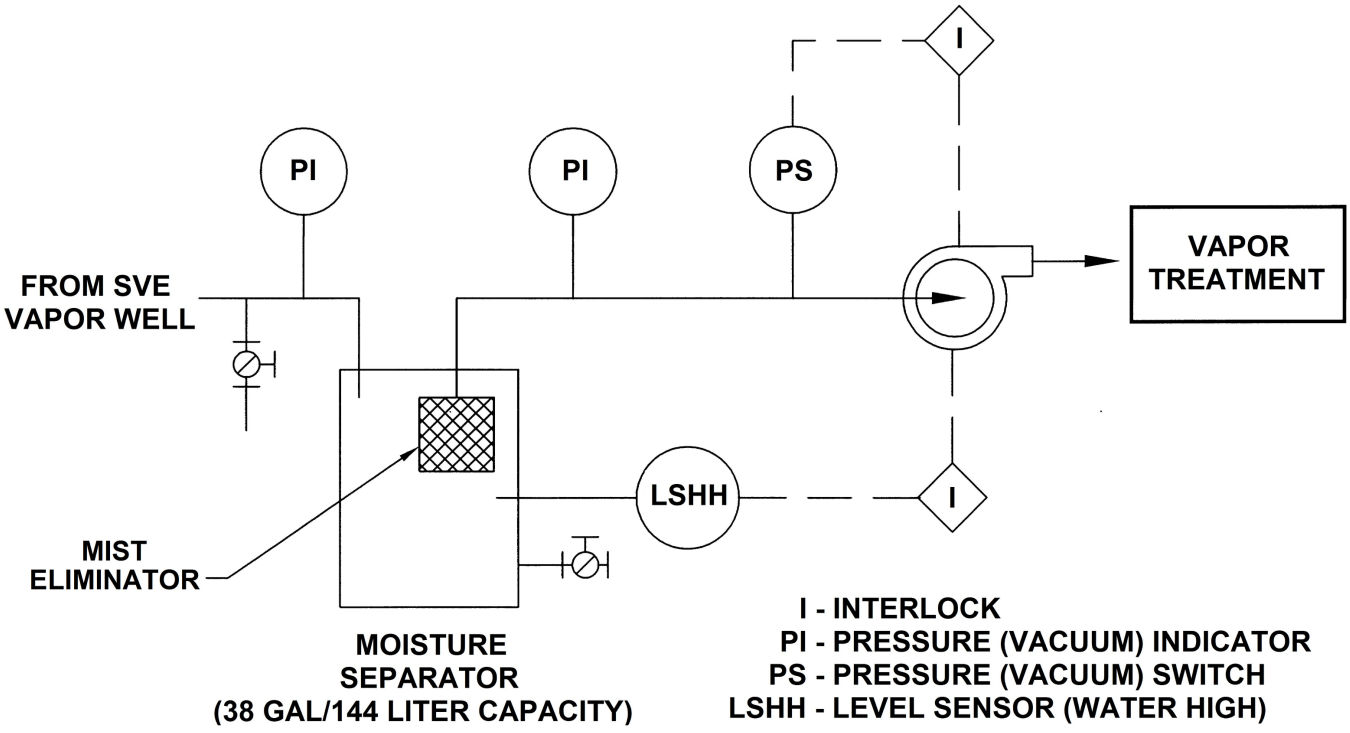


Figure 7-2 The Soil Vapor Extractor P & ID showing optional controls and accessories.

Section 8: Replacement Parts

SVE Parts Listing

Parts Description	Parts List

System Hardware

A variety of system blowers are available through your Geotech Sales Representative.

DRUM,55GAL,STEEL,EPOXY LINED,BLUE,W/2&3/4 BUNG	10759
TUBE,MIST ELIMATOR,PAINTED	10760
MIST ELIM,9"DX4"THK,POLY	10252
CLAMP,DRUM BASE,1/2"COND	10749
SWITCH,LIQ LVL,SPDT,EP,SIDE	10746

Plumbing

FTG,BHD,PVC80,3",FPTxS	PPP088009
FTG,BHD,PVC80,1",FPTxFPT	10748
PIPE,PVC40,3"	PPP035016
PIPE,PVC40,2"	10767
UNION,PVC40,3",SXS	16090006
ELBOW,PVC40,3",SXS	16090005
VALVE,BALL,PVC40,1.5"NPT	10757
VALVE,BALL,PVC40/EPDM,1",TxT	10798
NIPPLE,PVC80,1.5”xCLOSE	00192
NIPPLE,PVC80,1"xCLOSE	PPP009030

In addition to these parts Geotech can provide you with a variety of galvanized pipe and fittings in 1”, 1.5” and 2” sizes.

Air Flow and Vaccum

SWITCH,PRESS,SPDT,1.5-8 PSIG 1950P-8-2F	10745
SWITCH,PRESS,0.5-2.0PSI,EP	PPE080017
SWITCH,PRESS,0.4-1.6"WC	PPE080006
SWITCH,PRESSURE,DIFF,10-180"WC EXPL PROOF, H3 SER,H3A-1SL,DWY	16090265
GAUGE,FLOW,0-225 CFM @ 0-3",WC	PPP082020
GAUGE,FLOW,0-325CFM,7.97"WC	10506
FILTER,AIR,.175"NPT,20CFM	10315
GAUGE,VACUUM,0-100",1/4"	PPP092007
QCK CNCT,NCKL,1/4X1/8MPT,PUSH/ PULL	PPP103001
ELBOW,BRS,1/8",MxF,SQUARE	PPP003061
TUBING,PE,.170x1/4,FT POLYETHYLENE	87050501

Non-XP Electrical Components

ENCLOSURE,PIANO HINGE,JIC	16090095
CONN,HUB,3/4"CONDUIT,AL	PPP019022
TRANSFORMER,50V,460 TO 230	16090100
RELAY,110V,DPDT,10 AMP	PPE014090
RELAY,TIMER,120VAC,PC MNT	PPE014094
FUSE HOLDER ASSEMBLY	2010029
FUSE,1A,250V,SLO-BLO	PPE011026
FUSE,.5A,250V,SLO-BLO	PPE011016
SELECTOR SWITCH	17250035
INDICATOR LIGHT,RED,GECM	16110088
INDICATOR LIGHT,GREEN,GECM	16110112
TIMER,EM,1 POLE,120V,24 HOUR 2A517	16110138

XP Electrical Components

SWITCH,OPER,3 POS,EP	PPE015025
LIGHT,IND,RED,120V	PPE102002

MOTOR STARTER	(contact your Geotech Sales Representitive to spec out this item)
BLOWER	(contact your Geotech Sales Representitive to spec out this item)
TRANSFER PUMP	(contact your Geotech Sales Representitive to spec out this item)

MANUAL,SVE	10804
MANUAL,GECM	16110163

Appendix A - Decontamination Procedures

Some common decontamination solutions are listed below along with the contaminants they are effective against:

Solution	Effective Against
Water	Short-chain hydrocarbons, inorganic compounds, salts, some organic
acids, other polar	compounds.
Dilute Acids	Basic (caustic or alkaline) compounds, amines, hydrazines.
Dilute Bases	Acidic compounds, phenols thiols, some nitro- and sulfonic compounds.
Organic solvents	Non-polar compounds (such as some organic compounds)

The use of organic solvents is not recommended because:

1) Organic solvents can permeate and/or degrade the protective clothing and

2) They are generally toxic and may result in unnecessary employee exposure to hazardous chemicals.

When in doubt, use a dish washing liquid detergent. As a decontamination solution, it is readily available, is the safest of all the above, and is usually strong enough if used generously.

The use of steam can also be effective for decontamination. A water-lazer (pressurized water) is exceptionally valuable.

The following substances are noted for their particular efficiency in removing certain contaminants or for decontaminating certain types of equipment.

Solution	Effective Against
Penetone	PCB Contamination (since penetone may also remove paint, it is a good idea to spot-test before use)
Phosphate free detergent	Contaminated pumps
Ivory liquid	Oils
Diluted HTH	Cyanides
Radiac	Low level radioactivity
Isopropanol	Biological agents (should not be used on rubber products since it will break down rubber)
Hexane	Certain types of lab or sampling equipment (use of hexane is discouraged due to its flammability and toxicity
Zep	General purpose cleaning
Phosphate free	General purpose cleaning

detergent

Decontamination Solutions to Avoid

Some decontamination solutions should be avoided because of their toxicity, flammability, or harmful effects to the environment. Halogenated hydrocarbons, such as carbon tetrachloride, should not be used because of their toxicity, possible incompatibility, and some because of their flammability.

Organic decontamination solutions should not be used on personal protective equipment (PPE) because they may degrade the rubber or other materials comprising the PPE.

Mercurials are sometimes used for sterilization. They should be avoided because of their toxicity.

Chemical leaching, polymerization, and halogen stripping should all be avoided because of possible complications during decontamination.

Sand-blasting, a method of physical removal, should be avoided because the sand used on the contaminated object usually needs to be disposed of as hazardous waste, a very costly proposition. Also, sand-blasting exposes personnel to silica, a carcinogen.

Freon is known to be particularly effective for the cleansing of PCB's but its effect on the ozone layer is extremely harmful. Its use is discouraged.
Strong acids or bases should not be used when cleaning metals and gaskets or tools or other equipment because of the possibility of corrosion.

Disposal of Decontamination Solutions and Waste Water

All solutions and water used for decontamination must be collected. If lab analysis indicates that the water and/or solutions exceed allowable contamination levels, they must be treated as hazardous waste. Alternatively, the solutions and water may be treated on-site to lower the contamination levels and render them non hazardous.

Containers such as 55-gallon drums should be available for storage of wastes.

Spent decontamination solutions can be collected by using heavy-duty plastic sheets, visqueen sheets, kiddie pools, or if needed, a larger containment basin. The decontamination of equipment must be performed on the sheets or in the basins. They could be placed on a slight angle so that the spent decontamination solutions drain into a collection basin or drum.

Recommended Supplies for Decontamination of Personnel, Clothing and Equipment

The list below contains recommendations for supplies which would be on hand for the decontamination of personnel, clothing and equipment. Depending on the site activities, not all of these items may be needed. Alternatively, some additional items not listed here may be required.

- Drop cloths of plastic or other suitable material, such as visqueen, for heavily contaminated equipment.

- Disposal collection containers, such as drums or suitably lined trash cans for disposable clothing and heavily contaminated personal protective clothing or equipment to be discarded.

- Lined box with adsorbent for wiping or rinsing off gross contaminants and liquid contaminants.

- Wash tubs of sufficient size to enable workers to place booted foot in and wash off contaminants (without a drain or with a drain connected to a collection tank or appropriate treatment system).
- Rinse tubs of sufficient size to enable workers to place booted foot in and wash off contaminants (without a drain or with a drain connected to a collection tank or appropriate treatment system
- Wash solutions selected to wash off and reduce the hazards associated with the contaminated wash and rinse solutions.
- Rinse solution (usually water) to remove contaminants and contaminated wash solutions
- Long-handled, soft-bristled brushes to help wash and rinse off contaminants.
- Lockers and cabinets for storage of decontaminated clothing and equipment.
- Storage containers for contaminated wash and rinse solutions.
- Plastic sheeting, sealed pads with drains, or other appropriate method for containing and collecting contaminated wash and rinse water spilled during decontamination.
- Shower facilities for full body wash or at a minimum, personal wash sinks (with drains connected to a collection tank or appropriate treatment system).
- Soap or wash solution, wash cloths and towels.
- Clean clothing and personal item storage lockers and/or closets.

The Warranty

For a period of one (1) year from date of first sale, product is warranted to be free from defects in materials and workmanship. Geotech agrees to repair or replace, at Geotech's option, the portion proving defective, or at our option to refund the purchase price thereof. Geotech will have no warranty obligation if the product is subjected to abnormal operating conditions, accident, abuse, misuse, unauthorized modification, alteration, repair, or replacement of wear parts. User assumes all other risk, if any, including the risk of injury, loss, or damage, direct or consequential, arising out of the use, misuse, or inability to use this product. User agrees to use, maintain and install product in accordance with recommendations and instructions. User is responsible for transportation charges connected to the repair or replacement of product under this warranty.

Equipment Return Policy

A Return Material Authorization number (RMA #) is required prior to return of any equipment to our facilities, please call our 800 number for appropriate location. An RMA # will be issued upon receipt of your request to return equipment, which should include reasons for the return. Your return shipment to us must have this RMA # clearly marked on the outside of the package. Proof of date of purchase is required for processing of all warranty requests.

This policy applies to both equipment sales and repair orders.

FOR A RETURN MATERIAL AUTHORIZATION,
PLEASE CALL OUR SERVICE DEPARTMENT AT 1-800-833-7958

Model Number: _____

Serial Number: _____

Date of Purchase: _____

Equipment Decontamination

Prior to return, all equipment must be thoroughly cleaned and decontaminated. Please make note on RMA form, the use of equipment, contaminants equipment was exposed to, and decontamination solutions/methods used.

Geotech reserves the right to refuse any equipment not properly decontaminated. Geotech may also choose to decontaminate equipment for a fee, which will be applied to the repair order invoice.

Geotech Environmental Equipment, Inc
2650 East 40th Avenue Denver, Colorado 80205
(303) 320-4764 ● **(800) 833-7958** ● FAX (303) 322-7242
email: sales@geotechenv.com website: www.geotechenv.com

S-Flex™ 212

Adjustable Speed Enclosed Drive

Instruction Bulletin

30072-451-83
Rev. 06, 09/2017

Retain for future use.

SQUARE D™
by Schneider Electric

Table of Contents

Hazard Categories and Special Symbols 6
Please Note 6
SECTION 1:INTRODUCTION AND TECHNICAL CHARACTERISTICS 7
Product Overview 7
About This Document 7
Terminology 7
Before You Begin 8
Catalog Number Description 10
Nameplate Identification 12
Technical Characteristics 12
Short Circuit Ratings 14
Input Current Ratings 14
Technical Specifications 14
SECTION 2:RECEIVING, HANDLING, AND STORING 16
Receiving and Preliminary Inspection 16
Storing the Equipment 16
Unpacking the Enclosed Drive 17
Before Installing the Enclosed Drive 17
Handling the Enclosed Drive 17
SECTION 3:INSTALLATION AND START-UP 19
Installation Guidelines 19
Weights 19
Center of Gravity 20
Dimensions for Wall or Panel Mounting 21
Mounting Requirements 45
Mounting on an EZM Mounting Channel (Type 1 Only) 46
Seismic Qualification Mounting Criteria 47
Electrical Installation 48
General Wiring Practices 48
Input Power 49
Branch Circuit Connections 49
Input Wiring 49
Grounding 50
Connection to Ungrounded or High-Resistance Grounded Systems 51
Wiring and Electromagnetic Compatibility 52
Output Wiring 54
DC Bus Voltage Measurement Procedure 56
Wire Routing and Interconnection 57
Wire Class 57

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Noise Class 57
Voltage Class 57
Wiring Methods 58
Component Locations 60
Power Wiring 66
Control Wiring 70

Keypad Operation 73
Integrated Keypad 73
Graphic Keypad Option (D07) 75

Programming Access with Type 3R Enclosure 76

Initial Start-up Procedure 78
Checking the Enclosure Components and Connections 79
Adjusting Bypass Motor Overload Protection 80
Checking and Correcting Motor Rotation 81
Checking and Correcting Motor Rotation in Bypass Mode 82
Checking the Graphic Terminal Settings 82
Adjusting Mag-Gard or PowerPact Magnetic Trip Setting 84
Fusible Disconnect 85
Overload Relay Adjustment 86

SECTION 4:OPERATION 87

Programming the Power Converter 87

Power Circuit Y with Full Voltage Bypass 89

Power Circuit W Without Bypass 89

Operator Controls – General Arrangement and Operation 89
AFC Operation 90
Non-Bypass Units (Power Circuit W) 90
Bypass Units (Power Circuit Y, Series D) 90
Bypass Units (Power Circuit Y, Series E) 91
UL® Type 3R Operation 91
Freeze/Firestat Interlocks (If Used) 91
Pilot Lights 92
Auxiliary Drive Run Contact (Power Circuit W) 92
System Run Contact (Power Circuit Y) 92
Auxiliary Detected Fault Contact 92
Damper Control 92
Smoke Purge Function (Fireman's Override) 93

Options 94
MOD A06—BACnet 94
MOD A07—Drive Input Disconnect Switch 94
MOD B06—LonWorks 94
MOD B07—Line Contactor 94
MOD C06—Metasys N2 94
MOD D06—Apogee P1 94
MOD D07—Remote Graphic Keypad 94
MOD K07—50 °C Operation 94
MOD N06—Modbus 94
MOD S07—Seismic Qualified 94
MOD T07—cUL Option 95
MOD X07—Line Reactor 95

Wiring Diagrams 96

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SECTION 5:PROPORTIONAL–INTEGRAL–DERIVATIVE CONTROL 101

Introduction 102

Scaling of PID Parameters 103

PID Tuning 104

Setting PID Control 106
- Drive Configuration via Integrated or Graphic Keypad 106
- Control Loop Configuration 107
- Control Loop Configuration 108

Sleep/Wake Operation 108

PID Control Waiting Time 109

Attain Speed Relay 109
- Control Wiring 109
- Application Notes 111
- Programming the PID Internal Setpoint with the Keypad 111

SECTION 6:MAINTENANCE AND SUPPORT 112

Precautions 112

Diagnostic Codes 115

External Signs of Damage 115

Preventive Maintenance 115
- Inspection 116
- Maintenance after a Downstream Fault Has Occurred 116

Circuit Breaker Maintenance 117

Servicing the Front Fan Filters (without Rain Hood) 117

Servicing the Exhaust Fan Filter 119

Replacing the Door Fans 121

Technical Support 123
- Schneider Electric Services (On-Site) 123
- Schneider Electric Customer Training 123
- Product Literature 123
- S-Flex 212 Troubleshooting Sheet 124

Renewable Parts 125

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Hazard Categories and Special Symbols

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **can result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **can result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury. The safety alert symbol is not used with this signal word.

NOTE: Provides additional information to clarify or simplify a procedure.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

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Section 1— Introduction and Technical Characteristics

Product Overview

The S-Flex™ 212 enclosed drive is a full-featured adjustable speed package solution for variable torque applications. The S-Flex enclosed drive is a bypass package that includes an Altivar™ 212 adjustable speed drive on a wall-mountable back plane with pre-packaged model number options for both power and control functions. The following features are available for the standard bypass package:

- AFC-Off-Bypass selector switch in Series D
- Hand-Off-Auto and AFC-Bypass in Series E
- Local/Remote configurable on enclosed drive
- Power On red LED
- Bypass Run green LED
- Freeze/Firestat interlock
- Form C AFC detected fault contact
- Modbus™ RJ-45 communication port
- Smoke purge and damper control relays
- Circuit breaker disconnect
- Optional line disconnect switch or line contactor
- Optional full text keypad
- Optional non-bypass power circuit

About This Document

This instruction bulletin contains installation, programming, and maintenance instructions for the S-Flex enclosed drives. This revision adds information about Series E, S-Flex 212 enclosed drives with full voltage bypass (power circuit Y). Series E includes new control architecture for the Smoke Purge function (Fireman's Override). The following documentation is also provided with the drive:

- *Altivar 212 Installation Guide*, S1A53832
- *Altivar 212 Programming and Operation Guide*, S1A53838
- *Altivar 212 Quick Start Guide*, S1A53825
- *Handling, Installation, Operation, and Maintenance of Electrical Control Equipment,* Instruction Bulletin 30072-200-50

NOTE: To replace missing documents, contact Schneider Electric or download them from the Technical Library at www.Schneider-Electric.com.

Terminology

The following terminology is used throughout this instruction bulletin to distinguish between the S-Flex 212 enclosed drives and the Altivar 212 components.

- **Enclosed drive** refers to the S-Flex 212 package.
- **Drive or power converter** are used to describe the Altivar 212 component.

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Before You Begin

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Read and understand this manual before installing or operating the S-Flex enclosed drive. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.
- The user is responsible for compliance with all national and local electrical code requirements with respect to grounding of all equipment.
- Many parts of the drive, including the printed circuit boards, operate at the line voltage. DO NOT TOUCH. Use only electrically insulated tools.
- Some terminals have voltage on them when the disconnect is open.
- DO NOT short across terminals PA/+ and PC/– or across the DC bus capacitors.
- Before servicing the enclosed drive:
  - — Disconnect all power including external control power that may be present.
  - — Place a “DO NOT TURN ON” label on all power disconnects.
  - — Lock all power disconnects in the open position.
  - — WAIT 15 MINUTES to allow the DC bus capacitors to discharge. Then follow the “DC Bus Voltage Measurement Procedure” on page 56 to verify that the DC voltage is less than 42 V. The drive LED is not an indicator of the absence of DC bus voltage.
- Install and close all covers and doors before applying power or starting and stopping the enclosed drive.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

For Type 1, 460 V units and all Type 12 and 3R units:

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E®, CSA Z462, NOM-029-STPS, and other applicable regulations defining safe electrical work practices.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Never operate energized switch with door open.
- Turn off switch before removing or installing fuses or making load side connections.
- Always use a properly rated voltage sensing device at all line and load fuse clips to confirm switch is off.
- Turn off power supplying switch before doing any other work on or inside switch.
- Do not use renewable link fuses in fused switches.

Failure to follow these instructions will result in death or serious injury.

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⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

For Type 1 208 and 230 V units:

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practice See NFPA 70E®, CSA Z462, NOM-029-STPS, and other applicable regulations defining safe electrical work practices.
- This equipment must be installed and serviced only by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

UNINTENDED EQUIPMENT OPERATION

Before turning on the drive or upon exiting the configuration menus, ensure that the inputs assigned to the Run command are in a state that will not cause the drive to run. Otherwise, the motor can start immediately.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop and overtravel stop.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of anticipated transmission delays or failures of the link[1].
- Each implementation of an S-Flex enclosed drive must be individually and thoroughly tested for proper operation before being placed into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

[1] For additional information, refer to NEMA ICS 1.1 (latest edition), “Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control” and to NEMA ICS 7.1 (latest edition), “Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems.”

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⚠ CAUTION

INCOMPATIBLE LINE VOLTAGE

Before turning on and configuring the enclosed drive, ensure that the line voltage is compatible with the line voltage range specified on the enclosed drive nameplate. The enclosed drive can be damaged if the line voltage is not compatible.

Failure to follow these instructions can result in injury or equipment damage.

Catalog Number Description

The catalog number, located on the nameplate attached to the S-Flex enclosed drive, is coded to describe the configuration. See Figure 1 on page 12 for an example of the S-Flex nameplate.

Use Table 2 to translate the catalog number into a description of the enclosed drive. The following example translates the catalog number shown on the nameplate in Figure 1 on page 12.

Table 1 – Catalog Number Example: SFD212CG4YX07

Field				
01	**02**	**03**	**04**	**05**
SFD212	C	G	4	Y
	1 hp	Type 1 General Purpose	460 Vac	Full Voltage Bypass

Table 2 – Catalog Number Description

Field	Digit	Characteristic	Description
01	01 – 05	Enclosed Drive Style	SFD212 = S-Flex 212 Enclosed Drive
02	06	Horsepower	C = 1 hp D = 2 hp E = 3 hp F = 5 hp G = 7.5 hp H = 10 hp J = 15 hp K = 20 hp L = 25 hp M = 30 hp N = 40 hp P = 50 hp (460 V only) Q = 60 hp (460 V only) R = 75 hp (460 V only) S = 100 hp (460 V only)

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Table 2 – Catalog Number Description *(continued)*

Field	Digit	Characteristic	Description
03	07	Enclosure Type	A = Type 12K[1, 3] H = Type 3R[2, 3] G = Type 1 General Purpose
04	08	Voltage	2 = 208 Vac 3 = 230 Vac[3] 4 = 460 Vac
05	09	Power Circuit	W = Without Bypass Y = Full Voltage Bypass
06	010 – 012	Communication Set-Up Options	A06 = BACnet Card B06 = LonWorks® Card C06 = Metasys® N2 Card D06 = Apogee™ P1 Card N06 = Modbus
07	013 – 015	Miscellaneous Options	A07 = Drive Input Disconnect[4] B07 = Line Contactor S07 = Seismic Certification D07 = Full Text Keypad[5] K07 = cUL Marking (Canada) T07 = 50 °C Ambient Operation X07 = AC Line Reactor

1 Industrial use, dust-tight/drip-tight

2 Outdoor use

3 These drives are not stocked in the warehouse.

4 Options A07, Drive Input Disconnect, and B07, Line Contactor, are available only when a full voltage bypass (Y05) option is selected. Options A07 and B07 are mutually exclusive.

5 Optional for Type 1 only, standard on Type 12K and 3R.

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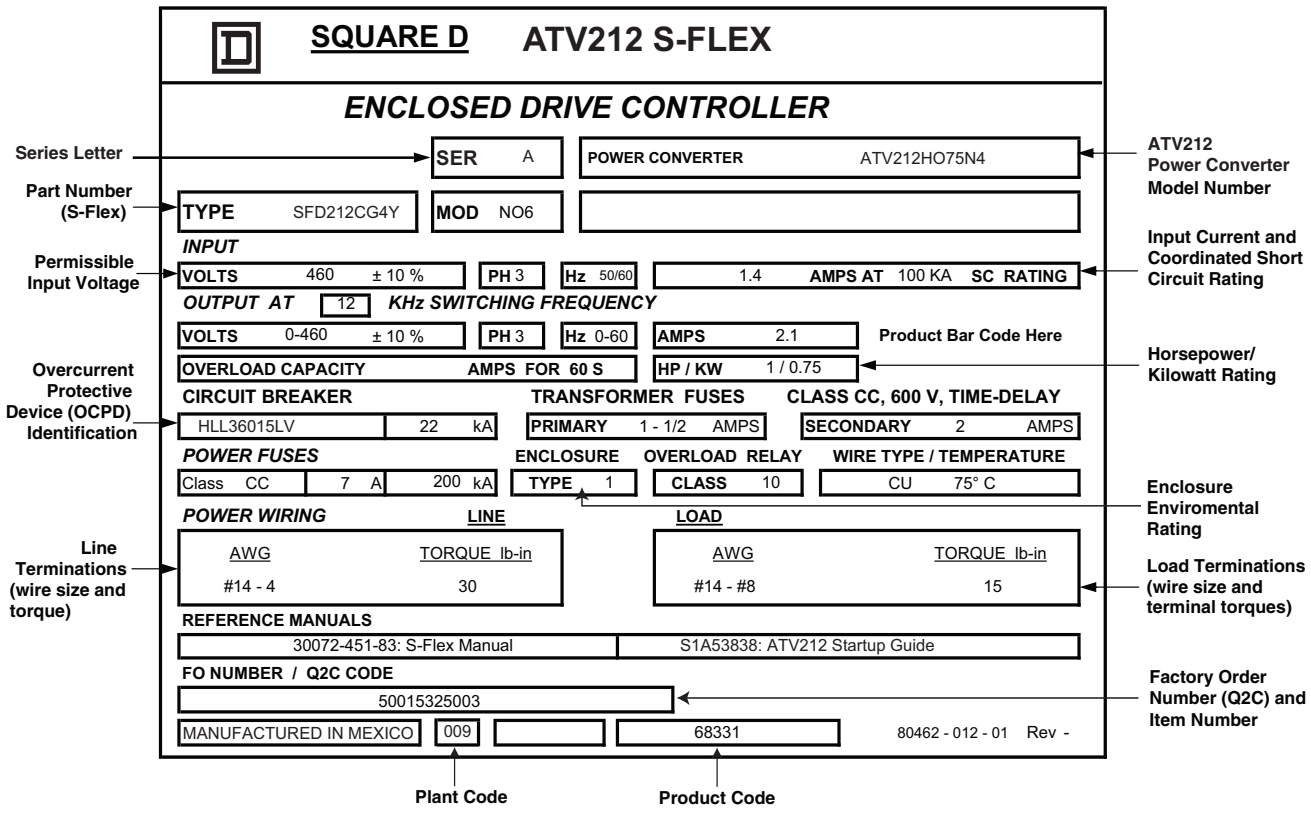
Nameplate Identification

The nameplate for the S-Flex enclosed drive is located on the inside of the door. See Figure 1. The nameplate identifies the drive type and modification options. When identifying or describing the S-Flex enclosed drive, use the data from the nameplate.

Figure 1 – S-Flex 212 Nameplate Example



Technical Characteristics

Table 3 – Variable Torque Ratings

S-Flex Catalog Number[1]	Input Voltage 60 Hz (Vac)	Horse-power Rating (hp)[2]	Kilowatt Rating (kW)	Input Current (A)[3]	Output Current (A)[2]	Max. Transient Output Current (A)[2]	Total Dissipated Power at Rated Load[4]	Power Converter Part Number[5]
SFD212C•2*	208	1	0.75	3.3	4.6	5.1	184.2	ATV212H075M3X
SFD212D•2*		2	1.5	6.1	7.5	8.3	228.3	ATV212HU15M3X
SFD212E•2*		3	2.2	8.7	10.6	11.7	256.0	ATV212HU22M3X
SFD212F•2*		5	4	15.7	16.7	19.3	326.8	ATV212HU40M3X
SFD212G•2*		7.5	5.5	20.8	24.2	26.6	384.7	ATV212HU55M3X
SFD212H•2*		10	7.5	27.9	30.8	35.2	495.0	ATV212HU75M3X
SFD212J•2*		15	11	42.1	46.2	50.8	641.2	ATV212HD11M3X
SFD212K•2*		20	15	56.1	59.4	67.1	846.1	ATV212HD15M3X
SFD212L•2*		25	18.5	67.3	74.8	82.3	939.1	ATV212HD18M3X
SFD212M•2*		30	22	80.4	88	96.8	1017.6	ATV212HD22M3X
SFD212N•2*		40	30	113.3	114	128.7	1414.3	ATV212HD30M3X

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Table 3 – Variable Torque Ratings *(continued)*

S-Flex Catalog Number[1]	Input Voltage 60 Hz (Vac)	Horse-power Rating (hp)[2]	Kilowatt Rating (kW)	Input Current (A)[3]	Output Current (A)[2]	Max. Transient Output Current (A)[2]	Total Dissipated Power at Rated Load[4]	Power Converter Part Number[5]
SFD212C•3*	230	1	0.75	2.8	4.2	5.1	183.1	ATV212H075M3X
SFD212D•3*		2	1.5	5.3	6.8	8.3	226.1	ATV212HU15M3X
SFD212E•3*		3	2.2	7.6	9.6	11.7	252.1	ATV212HU22M3X
SFD212F•3*		5	4	13.5	15.2	19.3	323.5	ATV212HU40M3X
SFD212G•3*		7.5	5.5	18.1	22	26.6	381.0	ATV212HU55M3X
SFD212H•3*		10	7.5	24.4	28	35.2	489.1	ATV212HU75M3X
SFD212J•3*		15	11	35.7	42	50.8	630.6	ATV212HD11M3X
SFD212K•3*		20	15	47.6	54	67.1	829.5	ATV212HD15M3X
SFD212L•3*		25	18.5	58.0	68	82.3	918.3	ATV212HD18M3X
SFD212M•3*		30	22	69.0	80	96.8	994.1	ATV212HD22M3X
SFD212N•3*		40	30	93.0	104	128.7	1378.4	ATV212HD30M3X
SFD212C•4*	460	1	0.75	1.4	2.1	2.4	173.1	ATV212H075N4
SFD212D•4*		2	1.5	2.5	3.4	4	197.6	ATV212HU15N4
SFD212E•4*		3	2.2	4.9	4.8	5.6	224.7	ATV212HU22N4
SFD212F•4*		5	4	6.4	7.6	10	303.6	ATV212HU40N4
SFD212G•4*		7.5	5.5	8.6	11	13.2	352.5	ATV212HU55N4
SFD212H•4*		10	7.5	11.7	14	17.6	418.8	ATV212HU75N4
SFD212J•4*		15	11	16.9	21	24.8	572.9	ATV212HD11N4
SFD212K•4*		20	15	22.6	27	33.6	765.8	ATV212HD15N4
SFD212L•4*		25	18.5	27.8	34	40.7	766.5	ATV212HD18N4
SFD212M•4*		30	22	33.1	40	47.9	806.0	ATV212HD22N4
SFD212N•4*		40	30	44.7	52	64.4	1041.5	ATV212HD30N4
SFD212P•4*		50	37	54.4	65	86.9	1241.6	ATV212HD37N4
SFD212Q•4*		60	45	65.9	77	103.4	1622.1	ATV212HD45N4
SFD212R•4*		75	55	89	96	127.6	2007.5	ATV212HD55N4
SFD212S•4*		100	75	111.3	124	176	2866.8	ATV212HD75N4

1 The "•" indicates the enclosure type: "A" = Type 12K, "G" = Type 1, and "H" = Type 3R.
The "*" indicates that the catalog number can end in a "Y" (for an S-Flex enclosed drive with full voltage bypass) or a "W" (for an S-Flex enclosed drive without bypass).

2 These power, amperage, and wattage ratings apply to:
Power converters ATV212H075••• to HD15••• (1–20 hp) operating at a switching frequency of 12 kHz, and at 40 ˚C (104 ˚F) ambient temperature.
Power converters ATV212HD18••• to HD75••• (25–100 hp @ 460 V) operating at a switching frequency of 8 kHz, and at 40 ˚C (104 ˚F) ambient temperature. For a switching frequency between 13 kHz and 16 kHz, select the next largest size drive. If the duty cycle does not exceed 60% (36 s for a 60 s cycle) this is not necessary.

3 Select the conductor based on the input line current or the motor FLA, whichever is greater.

4 For btu/hr, multiply values by 3.413.

5 Drives shown in the table are installed in SFD212 enclosed drives.

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⚠ WARNING

HEAT OR FIRE DAMAGE

- Protective devices must be properly coordinated.
- Do not connect the enclosed drive to a power feeder whose short circuit capacity exceeds the short circuit rating listed on the enclosed drive nameplate.

Failure to follow these instructions can result in death or serious injury.

Short Circuit Ratings

All configurations have a short-circuit withstand rating of 100,000 A (symmetrical).

Input Current Ratings

All branch circuit components and equipment must be rated for the input current of the drive or the motor full load current (FLA), which ever is greater. Branch circuit components and equipment include: transformers, feeder cables, disconnect devices, and protective devices. The input current rating is printed on the nameplate. See Figure 1 on page 12. The branch circuit feeder protection must be sized according to NEC Article 430.

Technical Specifications

Table 4 – S-Flex 212 Product Specifications

Electrical Specifications	
Input voltage	208 Vac ± 10%, 230 Vac ± 10%, 460 Vac ± 10%
Displacement power factor	Approximately 0.96
Input frequency	50/60 Hz ± 5%
Output voltage	Three-phase output, maximum voltage equal to input voltage
Galvanic isolation	Galvanic isolation between power and control (inputs, outputs, and power supplies)
Frequency range of the power converter	0.5 to 200 Hz (factory setting of 60 Hz maximum)
Current limit	110% of nominal drive full load current (FLA) for 60 s
Switching frequency	Selectable from 6 to 16 kHz, factory setting: 12 kHz[1] 1–20 hp; 8 kHz[2] above 25 hp
Speed reference	VIA: 4 to 20 mA, Impedance = 242 Ω or 0 to 10 Vdc, Impedance = 30 kΩ 0 to 20 mA, Impedance = 242 W (reassignable, X-Y range with keypad display) VIB: 0 to +10 V, Impedance = 30 kΩ
Frequency resolution in analog reference	0.0048 Hz (11 bits)
Speed accuracy 20–100% of motor rated torque	+/- 10% of nominal slip without speed feedback
Efficiency	Typically greater than 95%
Reference sample time	2 ms
Acceleration and deceleration ramps	0.1 to 3200 seconds (adjustable in 0.1 s increments)
Motor protection	Class 10 overload protection with bypass in addition to internal electronic thermal protection.
Keypad display	Self-diagnostics with status messages. 7-segment LED display (standard) Full text keypad, 8 languages (optional) Also see *Altivar 212 Installation Guide*, S1A53832

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Table 4 – S-Flex 212 Product Specifications *(continued)*

Environmental Specifications	
Storage temperature	-13 to +158 °F (-25 to +70 °C)
Operating temperature	+14 to +104 °F (-10 to +40 °C), Types 1, 12, and 3R; +14 to +122 °F (-10 to +50 °C), Types 1, 12, and 3R (Optional)
Humidity	95% with no condensation or dripping water, conforming to IEC 60068-2-3.
Altitude	3,300 ft. (1000 m) maximum without derating; derate the current by 1% for each additional 330 ft. (100 m) up to 10,000 ft. (3000 m).
Enclosure[3]	UL Type 1: General indoor (ventilated); UL Type 12K: Indoor dust-tight (ventilated); UL Type 3R: Outdoor (ventilated)
Pollution degree	Pollution degree 2 per NEMA ICS-1 and IEC 60664-1
Resistance to vibrations (Power converter only)	According to IEC 60068-2-6: 1.5 mm peak to peak from 3 to 13 Hz 1 g from 13 to 150 Hz
Resistance to shocks (Power converter only)	According to IEC 60068-2: 15 g, 11 ms
Transit test to shock	Conforms to International Safe Transit Association guidelines.
Codes and standards	**Type 1**: UL Listed per UL508C, cUL Listed per CSA C22.2 No 274-13, as incorporating Class 10 electronic and electromechanical overload protection. **Type 12K and 3R**: UL Listed per UL 508A, cUL Listed per CSA C22.2 No. 14-13. Conforms to applicable NEMA ICS, NFPA, and IEC standards. Manufactured under ISO 9001 standards. Seismic Certification: • IBC, NFPA 5000 and ASCE7 • ICC ES AC 156 [4]

[1] Above 12 kHz derate the drive per the graphs in the *Altivar 212 Installation Guide*, S1A53832.

[2] Above 8 kHz derate the drive per the graphs in the *Altivar 212 Installation Guide*, S1A53832.

[3] Plenum rated; suitable for placement in a compartment handling conditioned air. Type 1 only.

[4] Acceptance criteria test protocol with an importance factor of 1.5.

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Section 2— Receiving, Handling, and Storing

⚠ WARNING

DAMAGED EQUIPMENT

Do not operate or install any S-Flex enclosed drive that appears damaged.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Receiving and Preliminary Inspection

Before shipment from the factory, each S-Flex enclosed drive is inspected visually, electrically, and mechanically by professional quality-control analysts. Certification of quality control testing is available upon request.

The S-Flex enclosed drive must be thoroughly inspected before it is stored or installed. Upon receipt:

1. Remove the S-Flex enclosed drive from its packaging and visually inspect the exterior for shipping damage.
2. Ensure that the catalog number of the S-Flex enclosed drive, which appears on the nameplate, agrees with the packing slip and corresponding purchase order. See Figure 1 on page 12.
3. If you find any shipping damage, notify the carrier and your Schneider Electric sales representative.

Storing the Equipment

NOTICE

STACKING DURING STORAGE OR SHIPPING

- Do not stack S-Flex enclosed drives on top of each other.
- Do not place any material on top of the S-Flex enclosed drive.
- Store or ship the S-Flex enclosed drive in the original packaging.

Failure to follow these instructions can result in equipment damage.

If you plan to store the S-Flex enclosed drive after receipt, replace it in its original packaging and store it in a clean, dry area where the ambient temperature is between -13 to +158 °F (-25 to +70 °C). If the enclosed drive must be shipped to another location, use the original shipping material and carton to help protect it.

NOTE: Storing the equipment in its original packaging until it reaches its final installation site helps protect the equipment and helps prevent damage to its exterior.

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Unpacking the Enclosed Drive

⚠ WARNING

HEAVY EQUIPMENT

- Lifting the S-Flex enclosed drive requires the use of a lifting apparatus and a minimum of two people.
- Always use safe lifting practices.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Handle the S-Flex enclosed drive carefully to avoid damage to the internal components, frame, and exterior. Lift the S-Flex enclosed drive out of its shipping carton, lifting with a minimum of two people or a suitable lifting apparatus, and place it on a flat surface.

Before Installing the Enclosed Drive

Before installing the S-Flex enclosed drive, visually verify that all components are properly seated, securely fastened, and undamaged.

1. Unlatch and open the door of the enclosed drive.
2. Visually verify that:
   - All internally mounted hardware and terminal connection hardware is properly seated, securely fastened, and undamaged.
   - The control transformer fuses are in place in the fuse block.
3. Close and latch the S-Flex enclosed drive door.

Handling the Enclosed Drive

⚠ WARNING

HANDLING AND LIFTING HAZARD

- Keep the area below any equipment being lifted clear of all personnel and property.
- Lifting the S-Flex enclosed drive requires the use of a lifting apparatus and two people. Use the lifting method shown in Figure 2 on page 18.
- Before lifting the enclosed drive:
  - Inspect the lifting plates, holes, slots, and eyebolts for any damage.
  - Attach a spreader bar.
  - Keep the lifting force vertical.
  - Limit the swing angle to less than 45°.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

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When handling enclosed drives:

- Always work with another person. The weight, size, and shape of the enclosed drive is such that two people are required to handle it.
- Use cut-resistant gloves.
- Attach a spreader bar to the two top lifting holes on the enclosed drive back panel and hoist it with chains or straps. See Figure 2 for the proper hoisting method and Figure 3 for the lifting points on the S-Flex enclosed drive.
- Raise the enclosed drive from a horizontal position (that is, the back of the device resting on a pallet).
- Place the enclosed drive in an upright position.

  NOTE: Wall mounted enclosures will not sit upright without support. The bottom of the wall mounted enclosure is on an angle.
- Mount the enclosed drive on a flat, solid, noncombustible vertical surface, capable of supporting its weight.
- Secure all four corners of the enclosed drive with hardware of a sufficient size and type capable of supporting its weight.

Figure 2 – Hoisting the S-Flex Drives

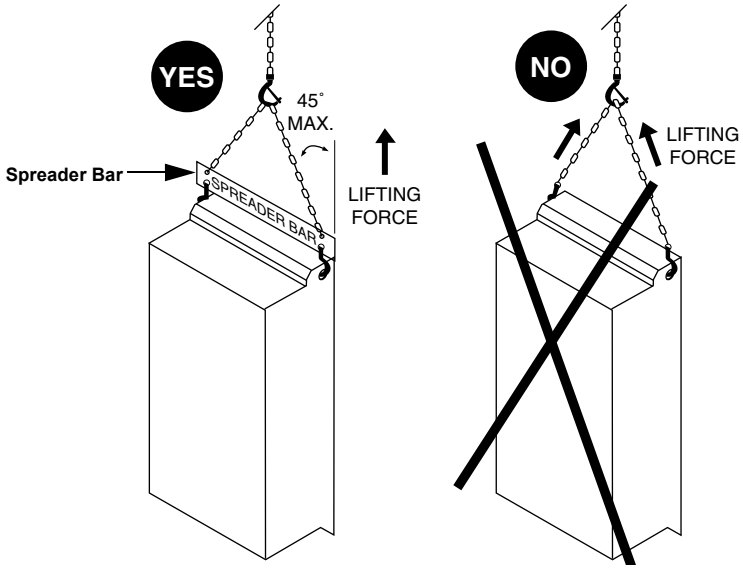
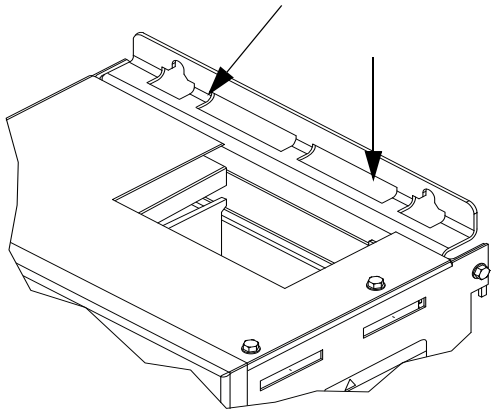


Figure 3 – Lifting Points on the S-Flex Enclosed Drives



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Section 3— Installation and Start-up

Installation Guidelines

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Read and understand the precautions in “Before You Begin” starting on page 8 before performing the procedures in this section.

Failure to follow these instructions will result in death or serious injury.

Follow these precautions when installing the S-Flex enclosed drive:

- The enclosed drive is suitable for installation in a pollution degree 2 environment, as defined in NEMA ICS1 and IEC 60664-1.
- When attaching wall-mountable enclosed drives to their mounting surfaces, use fasteners rated for the weight of the device, the expected shock and vibration of the installation, and the expected environment. See Tables 5–7 on pages 19–20 for S-Flex enclosed drive weights.
- Provide sufficient cooling for the expected heat load. See Table 3 on page 12 for dissapated power at rated load.
- Do not mount the enclosed drive in direct sunlight or on hot surfaces. Mount it on a solid, flat surface only.

Weights

Table 5 – 460 V S-Flex 212 Weights

Catalog Number[1]	hp	Type 1 (G03)		Type 12K/3R (A03/H03)	
		Weight lb (kg)[2]	Weight w/Mod X07 lb (kg)	Weight lb (kg)[2]	Weight w/Mod X07 lb (kg)
SFD212C•4*	1	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212D•4*	2	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212E•4*	3	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212F•4*	5	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212G•4*	7.5	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212H•4*	10	52 (23.5)	83 (37.7)	175 (79.4)	180 (81.6)
SFD212J•4*	15	52 (23.5)	83 (37.7)	175 (79.4)	180 (81.6)
SFD212K•4*	20	111 (50.3)	133 (60.33)	270 (122.5)	290 (131.5)
SFD212L•4*	25	111 (50.3)	133 (60.33)	270 (122.5)	290 (131.5)
SFD212M•4*	30	140 (63.5)	223 (101.2)	270 (122.5)	290 (131.5)
SFD212N•4*	40	140 (63.5)	223 (101.2)	270 (122.5)	290 (131.5)
SFD212P•4*	50	140 (63.5)	223 (101.2)	330 (149.7)	360 (163.3)
SFD212Q•4*	60	140 (63.5)	223 (101.2)	330 (149.7)	360 (163.3)
SFD212R•4*	75	206 (93.4)	278 (126)	330 (149.7)	360 (163.3)
SFD212S•4*	100	206 (93.4)	278 (126)	330 (149.7)	360 (163.3)

1 The “•” indicates the enclosure type: “A” = Type 12K, “G” = Type 1, and “H” = Type 3R. The “*” indicates that the catalog number can end in a “Y” (for an S-Flex enclosed drive with full voltage bypass) or a “W” (for an S-Flex enclosed drive without bypass).

2 The weight varies depending on modification options.

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Table 6 – 230 V S-Flex 212 Weights

Catalog Number[1]	hp	Type 1 (G03)		Type 12K/3R (A03/H03)	
		Weight lb (kg)[2]	Weight w/Mod X07 lb (kg)	Weight lb (kg)[2]	Weight w/Mod X07 lb (kg)
SFD212C•3*	1	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212D•3*	2	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212E•3*	3	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212F•3*	5	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212G•3*	7.5	52 (23.5)	83 (37.7)	175 (79.4)	185 (83.9)
SFD212H•3*	10	52 (23.5)	83 (37.7)	175 (79.4)	185 (83.9)
SFD212J•3*	15	111 (50.3)	133 (60.33)	270 (122.5)	300 (136.1)
SFD212K•3*	20	111 (50.3)	133 (60.33)	270 (122.5)	300 (136.1)
SFD212L•3*	25	111 (50.3)	133 (60.33)	270 (122.5)	300 (136.1)
SFD212M•3*	30	140 (63.5)	223 (101.2)	270 (122.5)	300 (136.1)
SFD212N•3*	40	206 (93.4)	278 (126)	330 (149.7)	360 (163.3)

1 The "•" indicates the enclosure type: "A" = Type 12K, "G" = Type 1, and "H" = Type 3R.
The "*" indicates that the catalog number can end in a "Y" (for an S-Flex enclosed drive with full voltage bypass) or a "W" (for an S-Flex enclosed drive without bypass).

2 The weight varies depending on modification options.

Table 7 – 208 V S-Flex 212 Weights

Catalog Number[1]	hp	Type 1 (G03)		Type 12K/3R (A03/H03)	
		Weight lb (kg)[2]	Weight w/Mod X07 lb (kg)	Weight lb (kg)[2]	Weight w/Mod X07 lb (kg)
SFD212C•2*	1	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212D•2*	2	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212E•2*	3	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212F•2*	5	52 (23.5)	83 (37.7)	135 (61)	140 (63.5)
SFD212G•2*	7.5	52 (23.5)	83 (37.7)	175 (79.4)	185 (83.9)
SFD212H•2*	10	52 (23.5)	83 (37.7)	175 (79.4)	185 (83.9)
SFD212J•2*	15	111 (50.3)	133 (60.33)	270 (122.5)	300 (136.1)
SFD212K•2*	20	111 (50.3)	133 (60.33)	270 (122.5)	300 (136.1)
SFD212L•2*	25	111 (50.3)	133 (60.33)	270 (122.5)	300 (136.1)
SFD212M•2*	30	140 (63.5)	223 (101.2)	270 (122.5)	300 (136.1)
SFD212N•2*	40	206 (93.4)	278 (126)	330 (149.7)	360 (163.3)

1 The "•" indicates the enclosure type: "A" = Type 12K, "G" = Type 1, and "H" = Type 3R.
The "*" indicates that the catalog number can end in a "Y" (for an S-Flex enclosed drive with full voltage bypass) or a "W" (for an S-Flex enclosed drive without bypass).

2 The weight varies depending on modification options.

Center of Gravity

Center of gravity information is provided for reference in mounting and for consideration in structural analysis.

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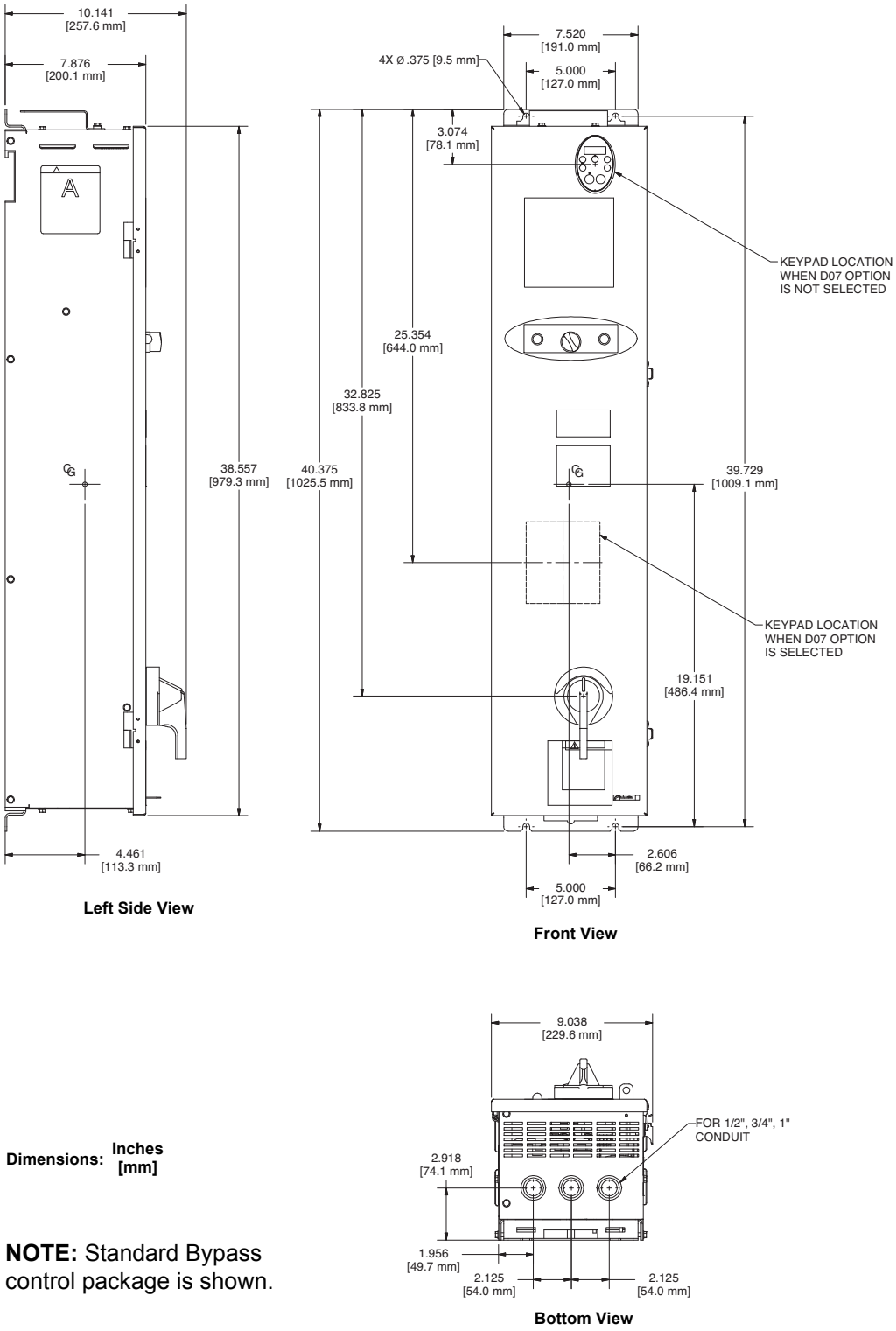
Dimensions for Wall or Panel Mounting

Figure 4 – Frame Size A, Type 1: 1–10 hp @ 208/230 Vac and 1–15 hp @ 460 Vac



Dimensions: **Inches [mm]**

NOTE: Standard Bypass control package is shown.

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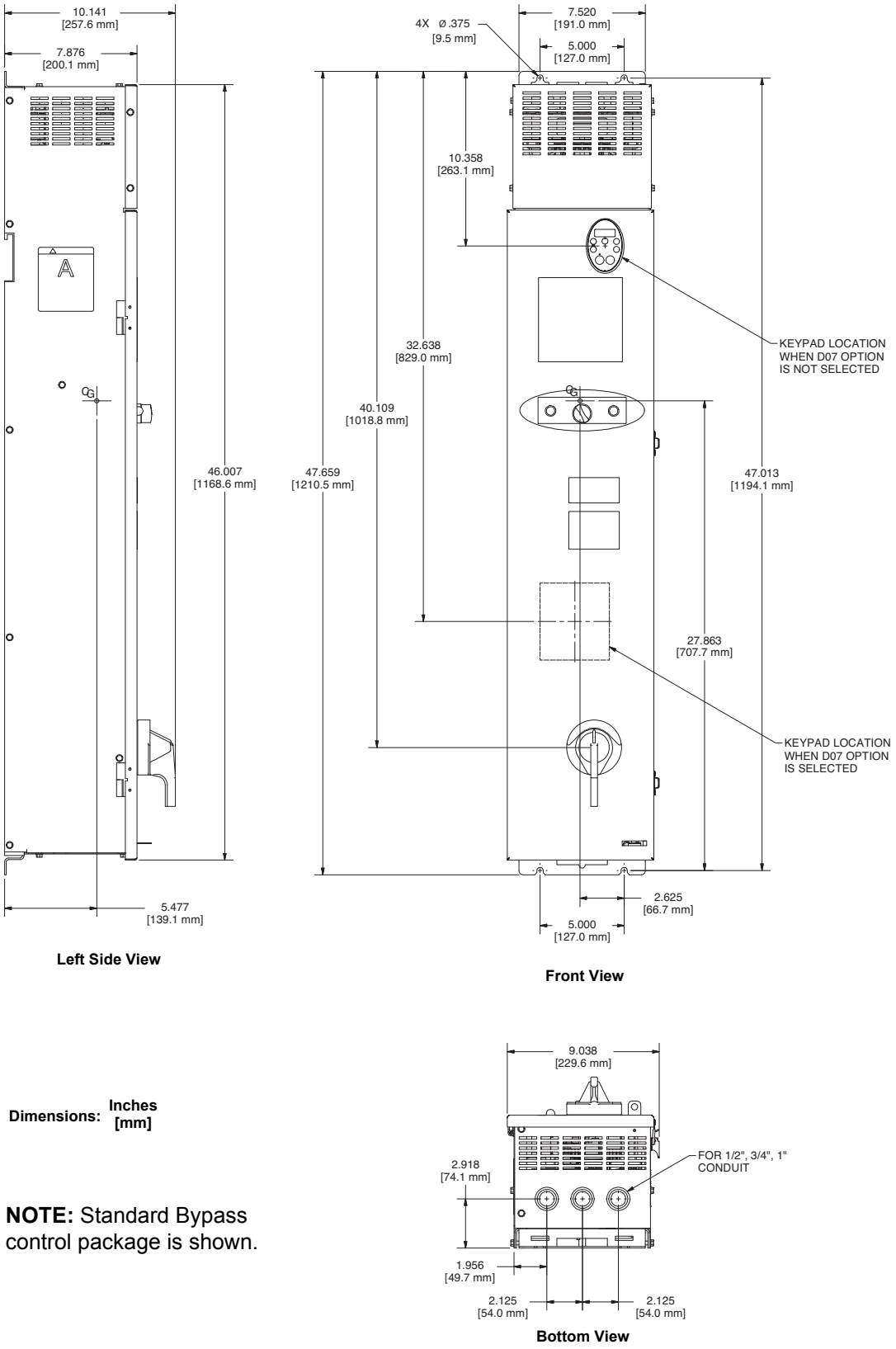
Figure 5 – Frame Size A, Type 1: 1–10 hp @ 208/230 Vac and 1–15 hp @ 460 Vac with Line Reactor



Dimensions: **Inches [mm]**

NOTE: Standard Bypass control package is shown.

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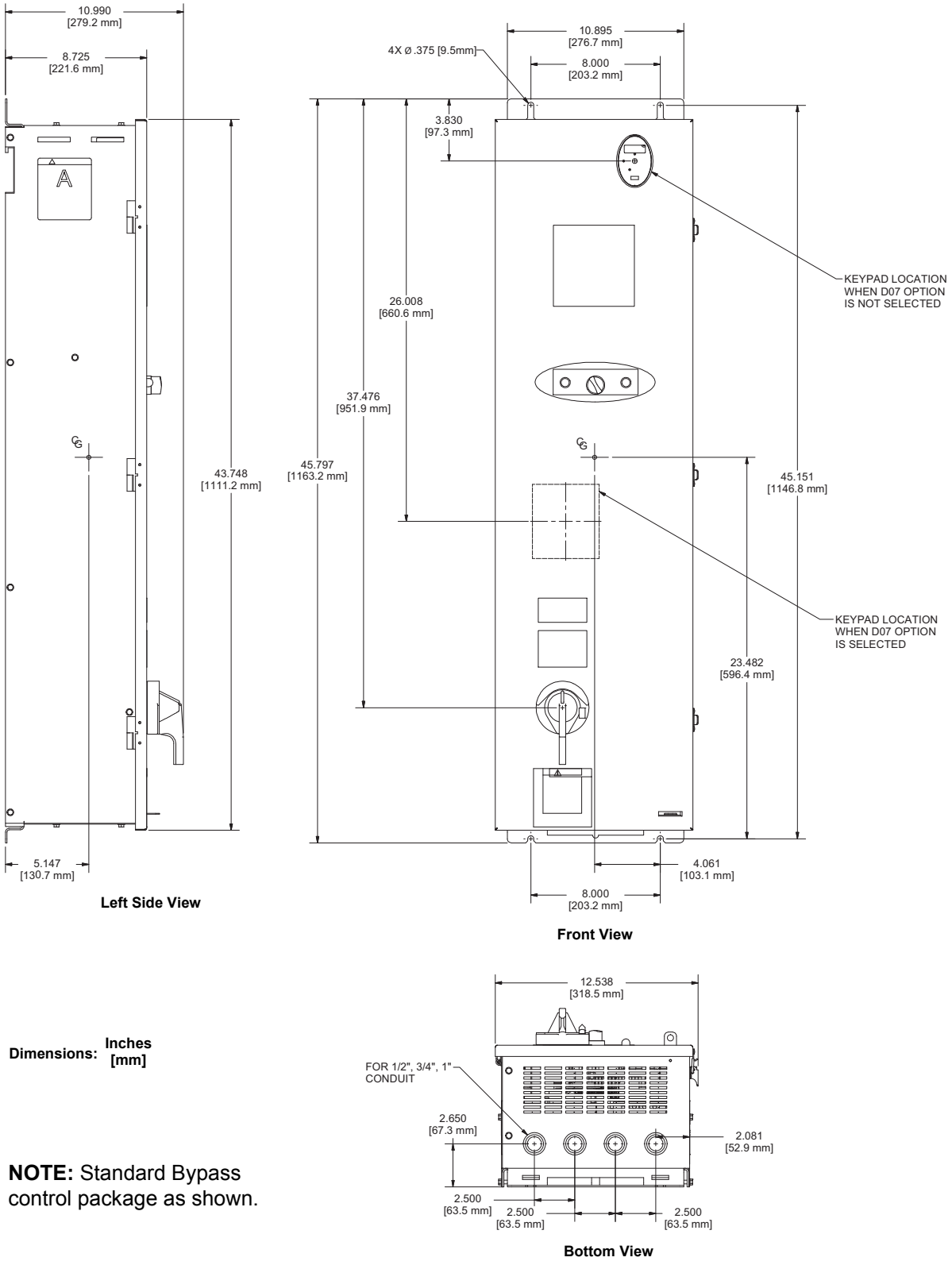
Figure 6 – Frame Size B, Type 1: 15–25 hp @ 208/230 Vac and 20–25 hp @ 460 Vac



Dimensions: **Inches [mm]**

NOTE: Standard Bypass control package as shown.

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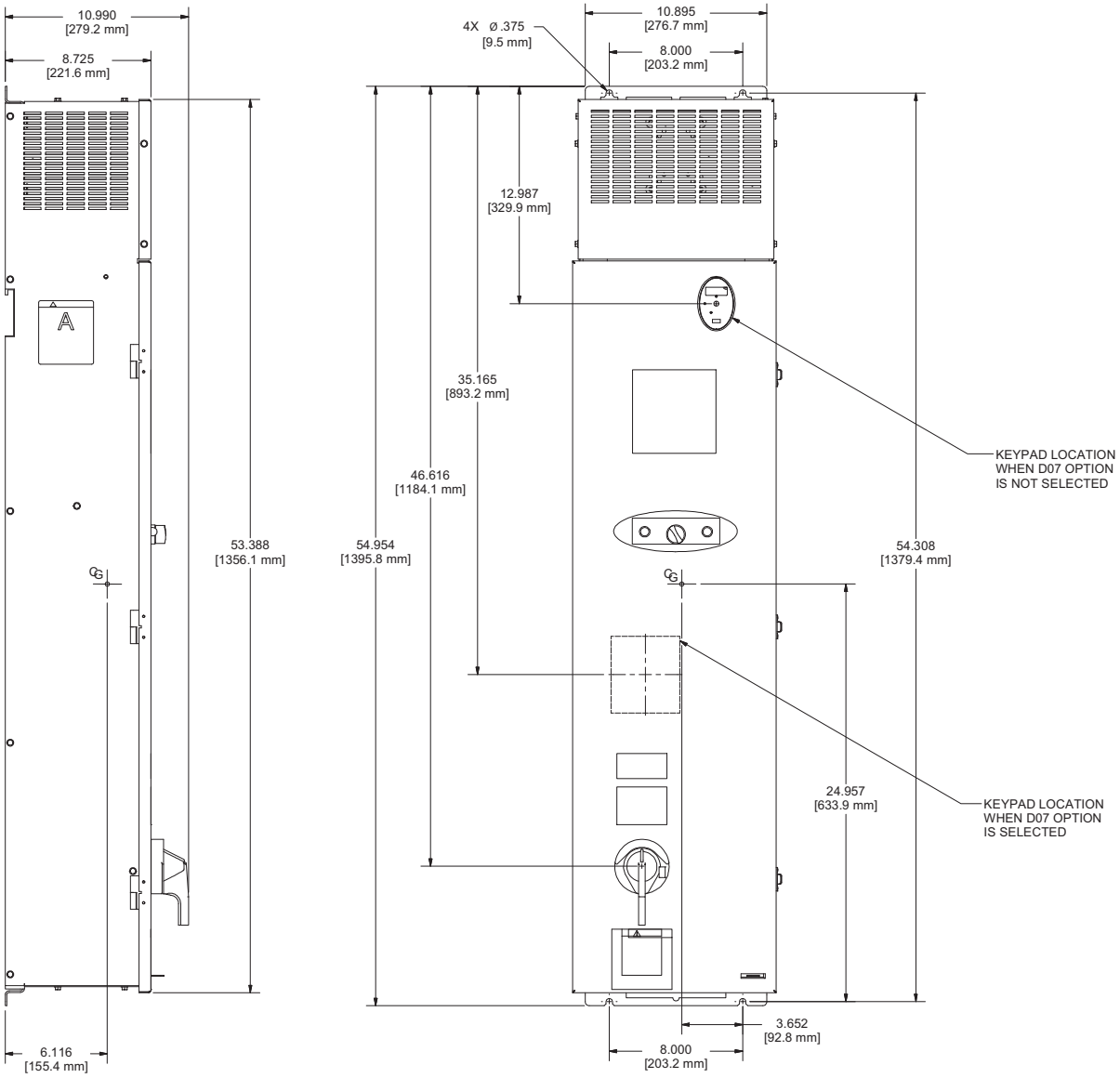
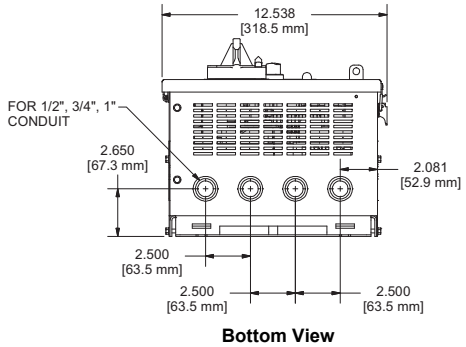
Figure 7 – Frame Size B, Type 1: 15–25 hp @ 208/230 Vac and 20–25 hp @ 460 Vac with Line Reactor



Dimensions: **Inches [mm]**



NOTE: Standard Bypass control package as shown.

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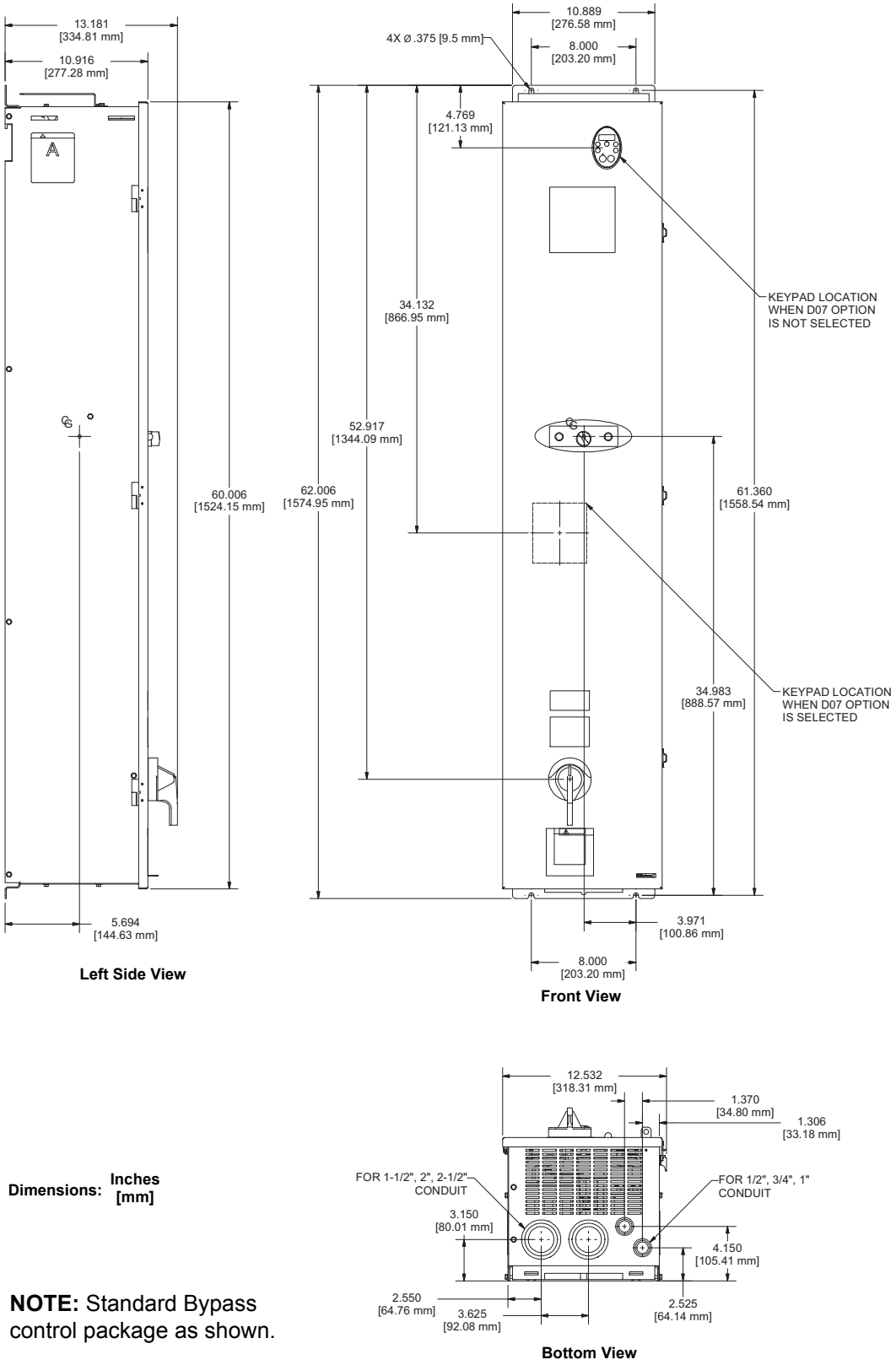
Figure 8 – Frame Size C, Type 1: 30 hp @ 208/230 Vac and 30–60 hp @ 460 Vac



Dimensions: **Inches [mm]**

NOTE: Standard Bypass control package as shown.

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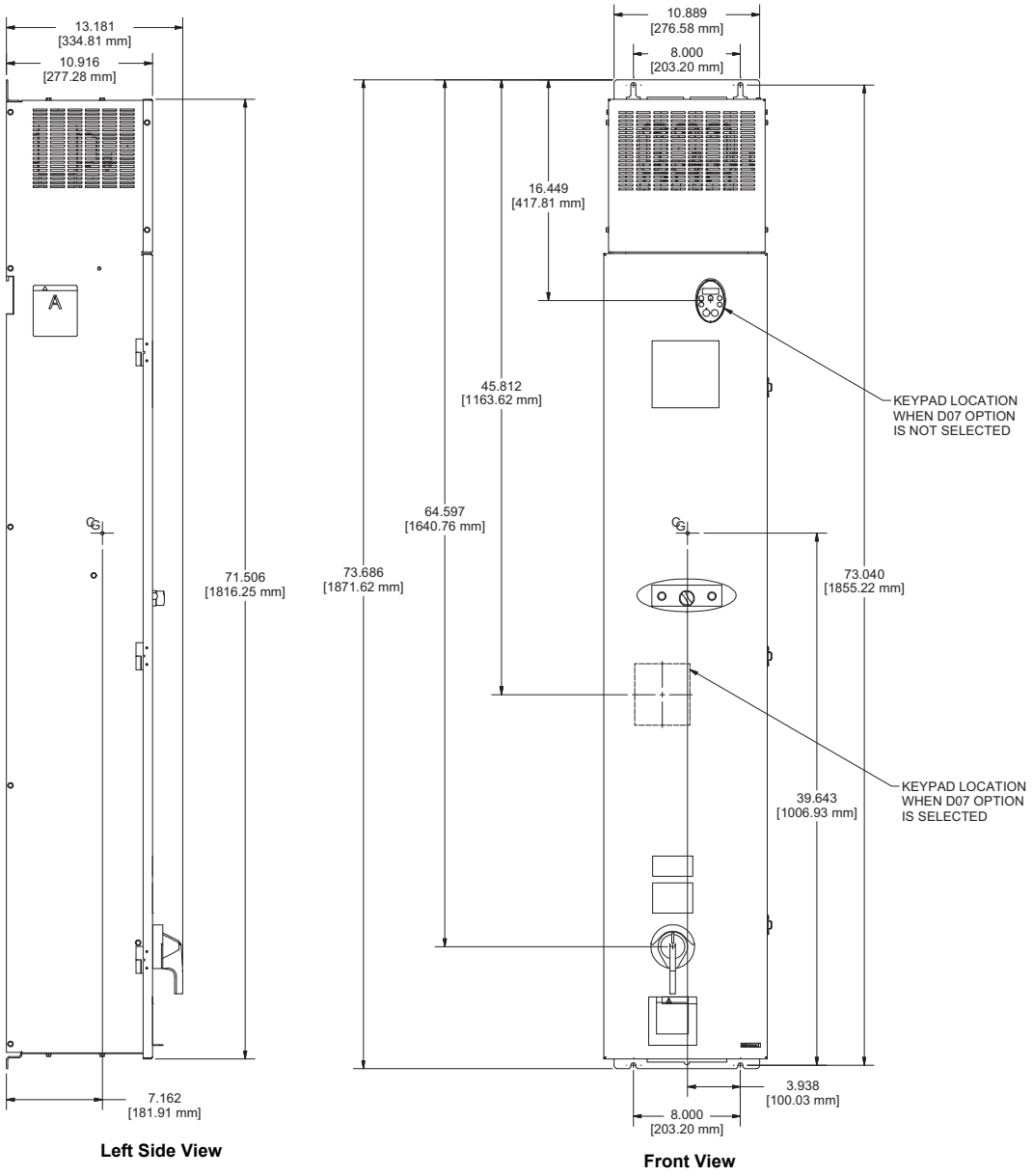
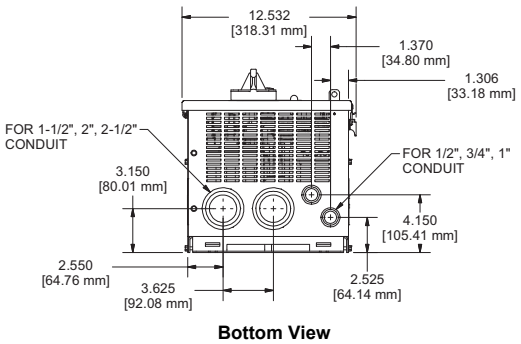
Figure 9 – Frame Size C, Type 1: 30 hp @ 208/230 Vac and 30–60 hp @ 460 Vac with Line Reactor



Dimensions: **Inches [mm]**



NOTE: Standard Bypass control package as shown.

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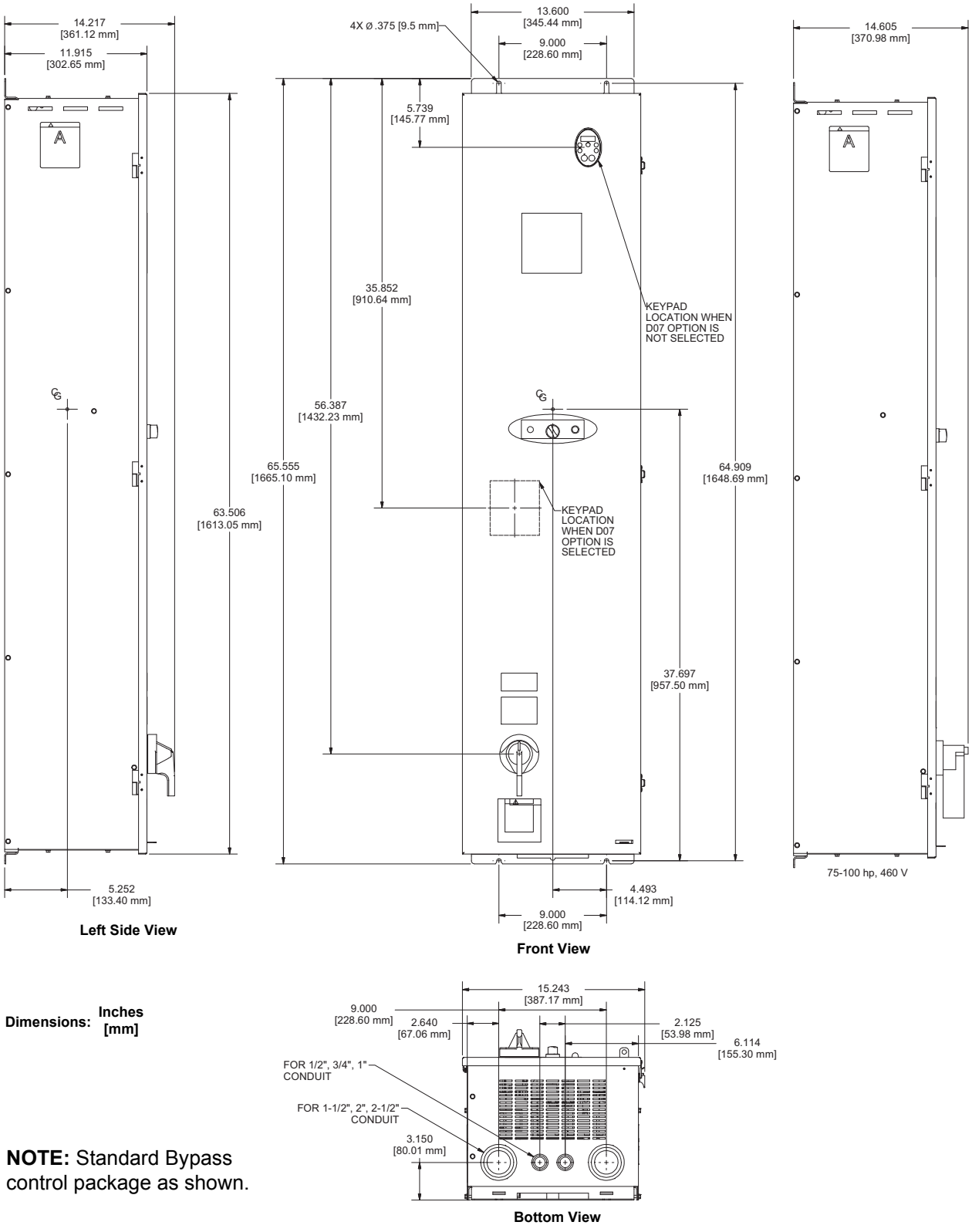
Figure 10 – Frame Size D, Type 1: 40 hp @ 208/230 Vac and 75–100 hp @ 460 Vac



NOTE: Standard Bypass control package as shown.

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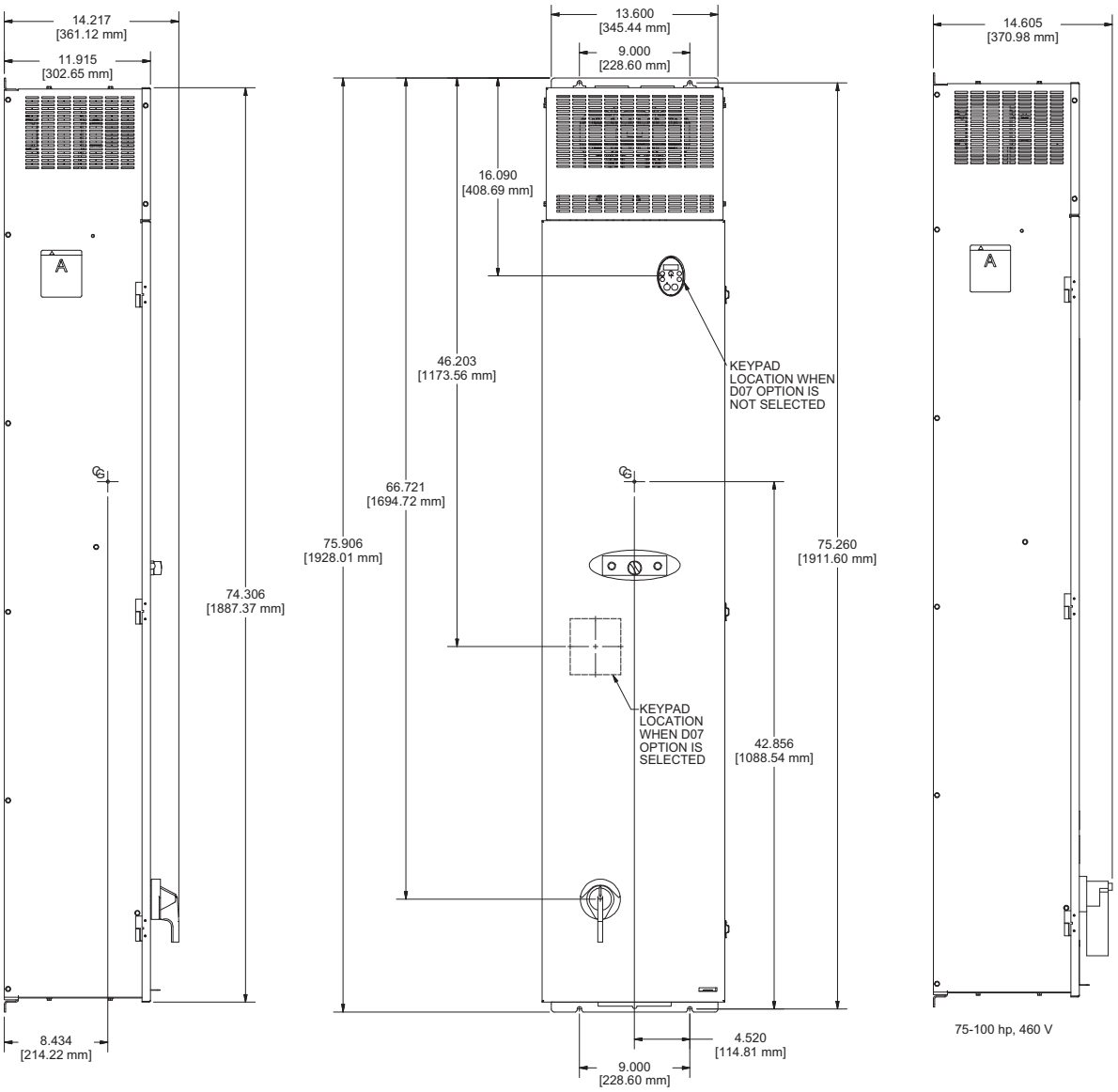
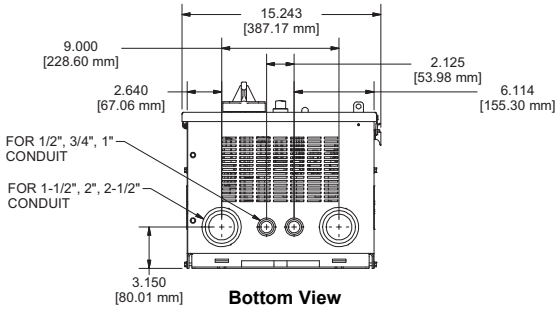
Figure 11 – Frame Size D, Type 1: 40 hp @ 208/230 Vac and 75–100 hp @ 460 Vac with Line Reactor



Dimensions: **Inches [mm]**



NOTE: Standard Bypass control package as shown.

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Figure 12 – Frame Size A, Type 12K: 1–5 hp @ 208/230 Vac and 1–7.5 hp @ 460 Vac

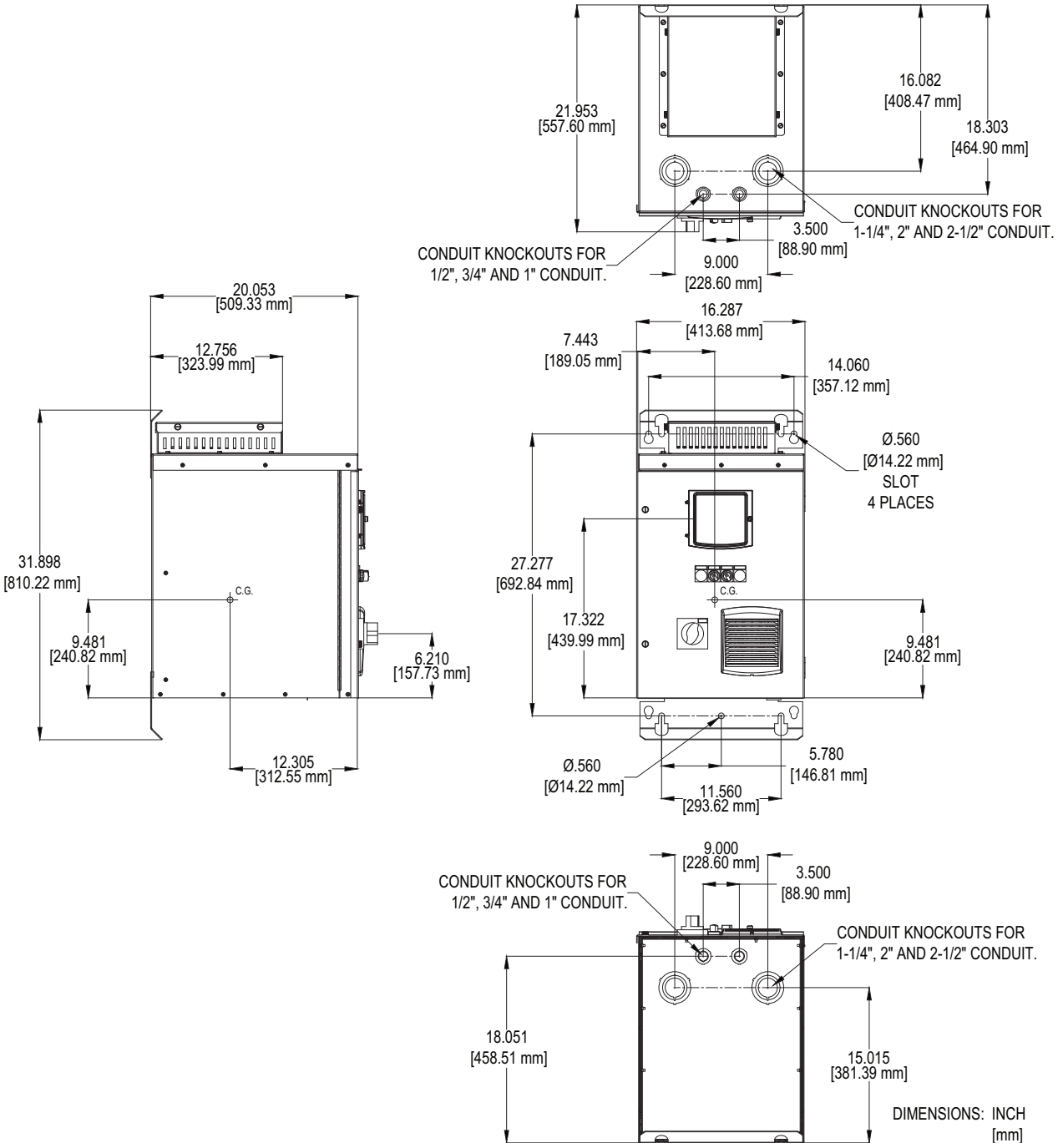

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Figure 13 – Frame Size A, Type 12K Seismic: 1–5 hp @ 208/230 Vac and 1–7.5 hp @ 460 Vac

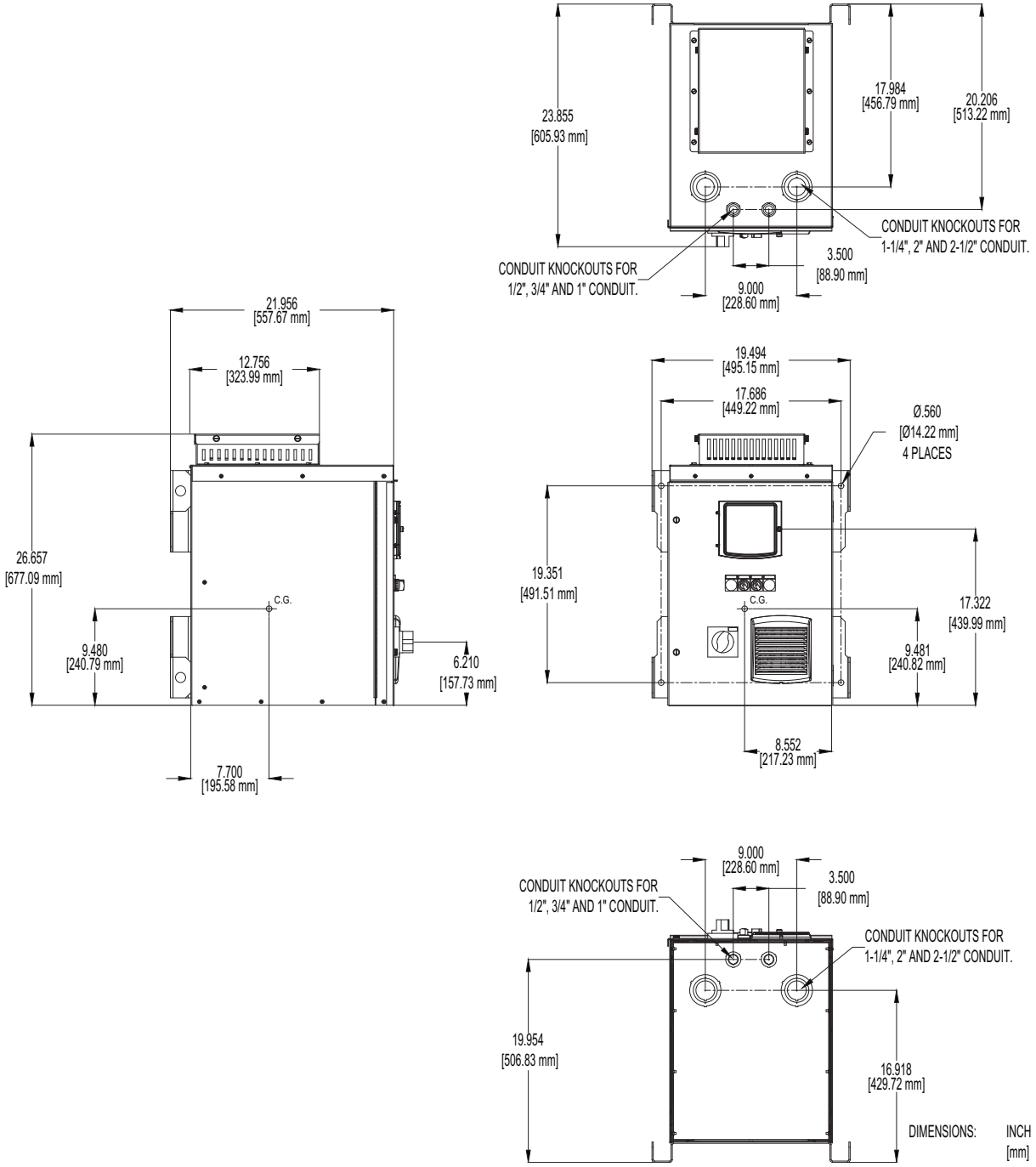

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Figure 14 – Frame Size B, Type 12K: 7.5–10 hp @ 208/230 Vac and 10–15 hp @ 460 Vac

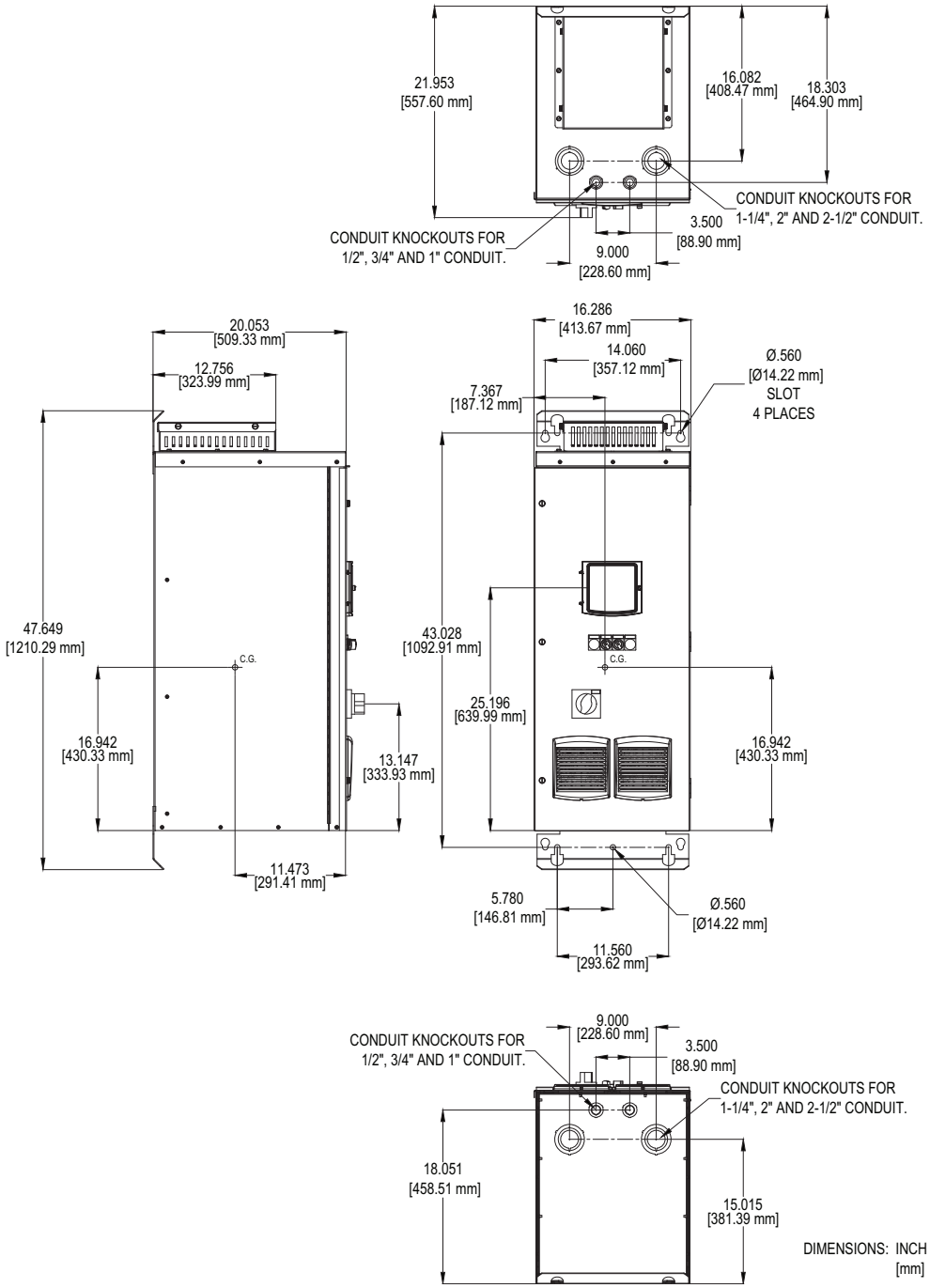

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Figure 15 – Frame Size B, Type 12K Seismic: 7.5–10 hp @ 208/230 Vac and 10–15 hp @ 460 Vac

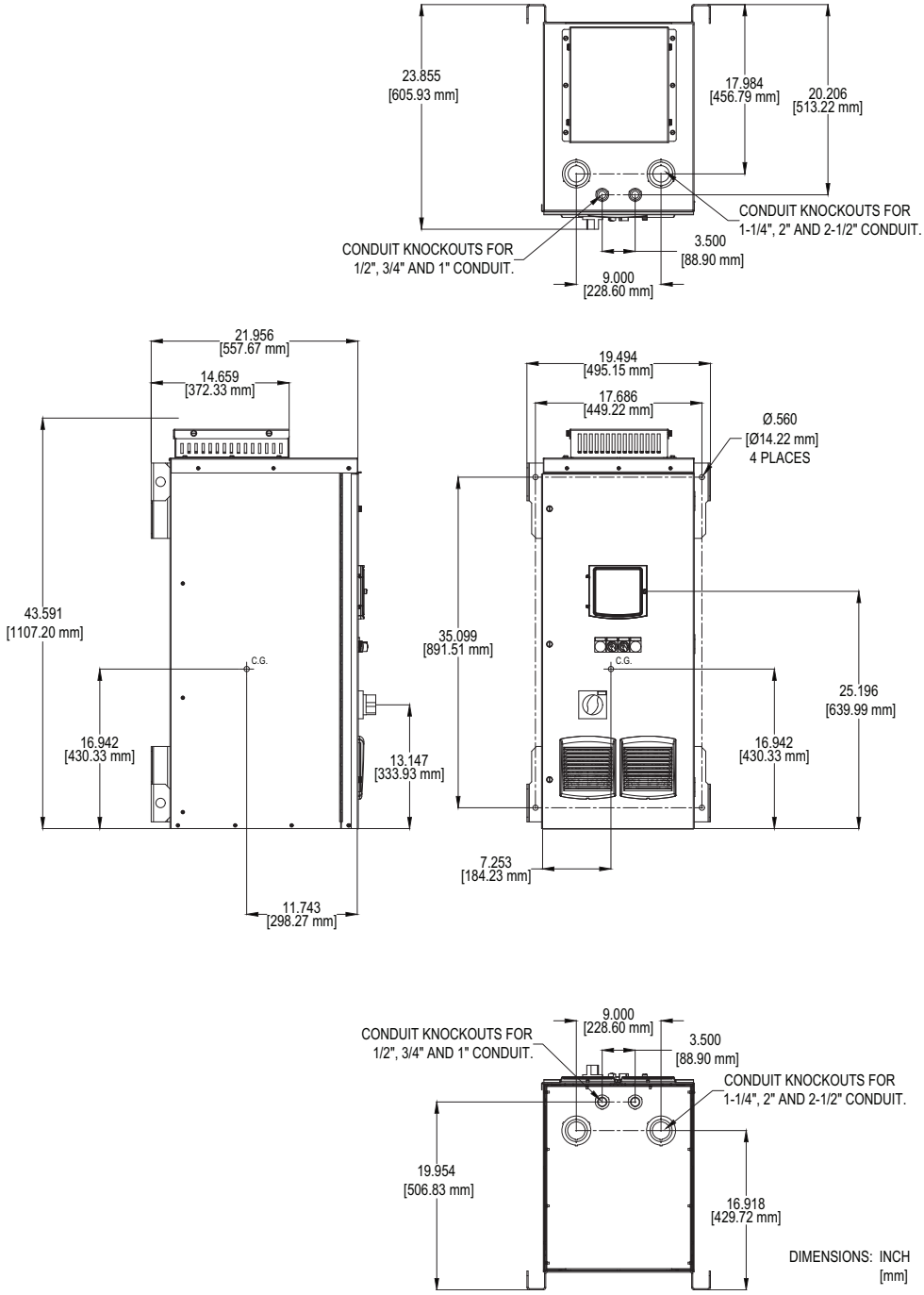

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Figure 16 – Frame Size C, Type 12K: 15–30 hp @ 208/230 Vac and 20–40 hp @ 460 Vac

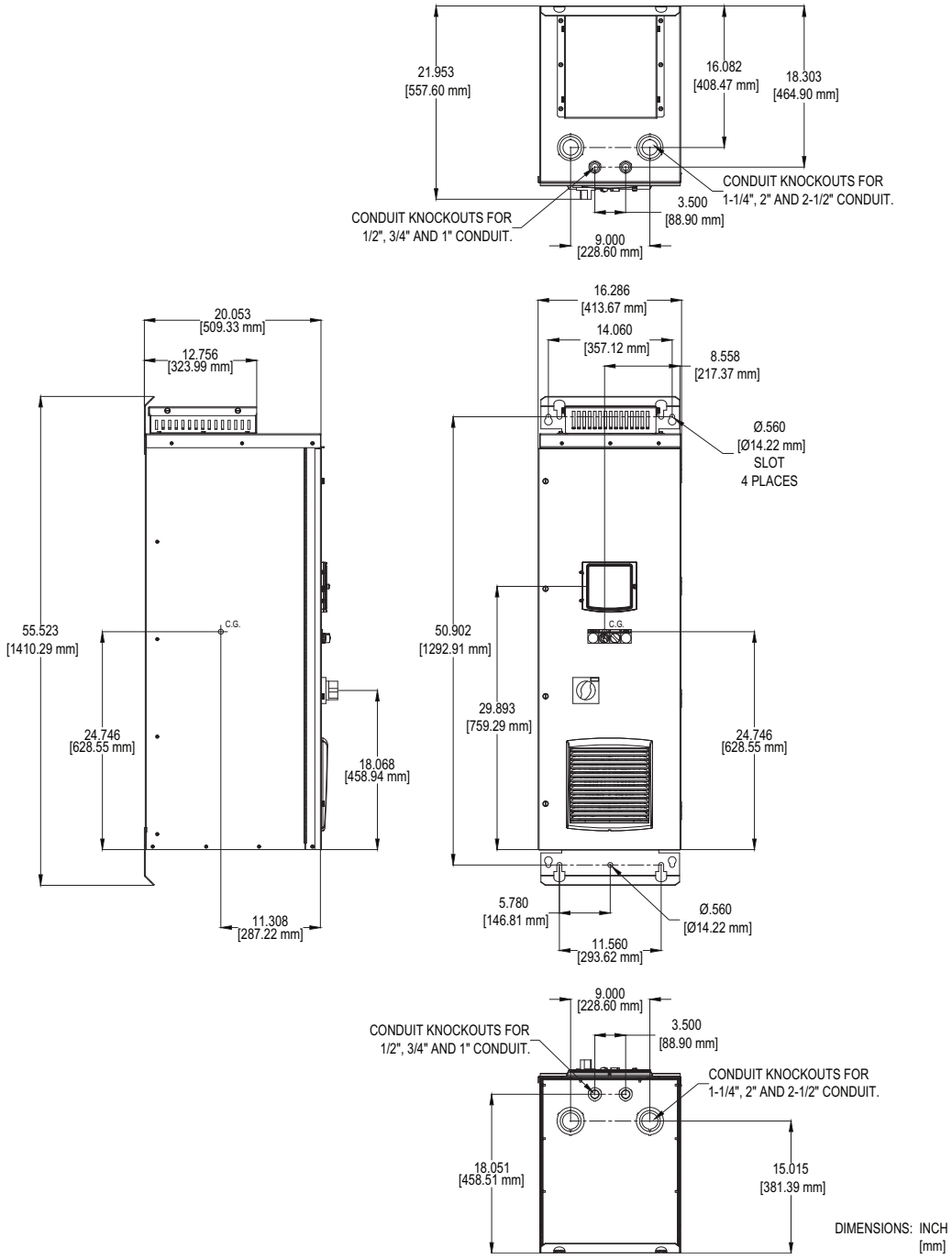

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Figure 17 – Frame Size C, Type 12K Seismic: 15–30 hp @ 208/230 Vac and 20–40 hp @ 460 Vac

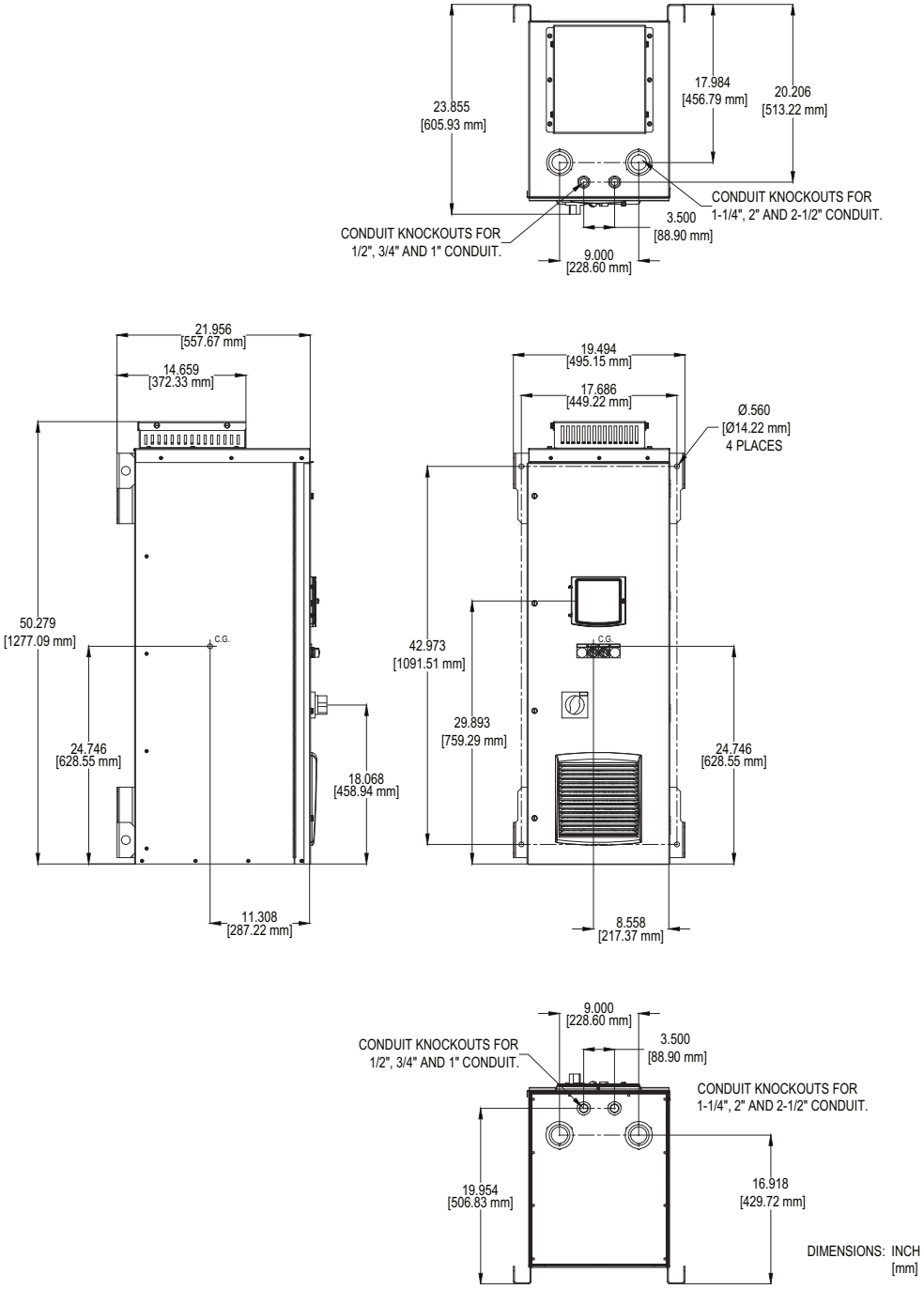

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Figure 18 – Frame Size D, Type 12K: 40 hp @ 208/230 Vac and 50–100 hp @ 460 Vac

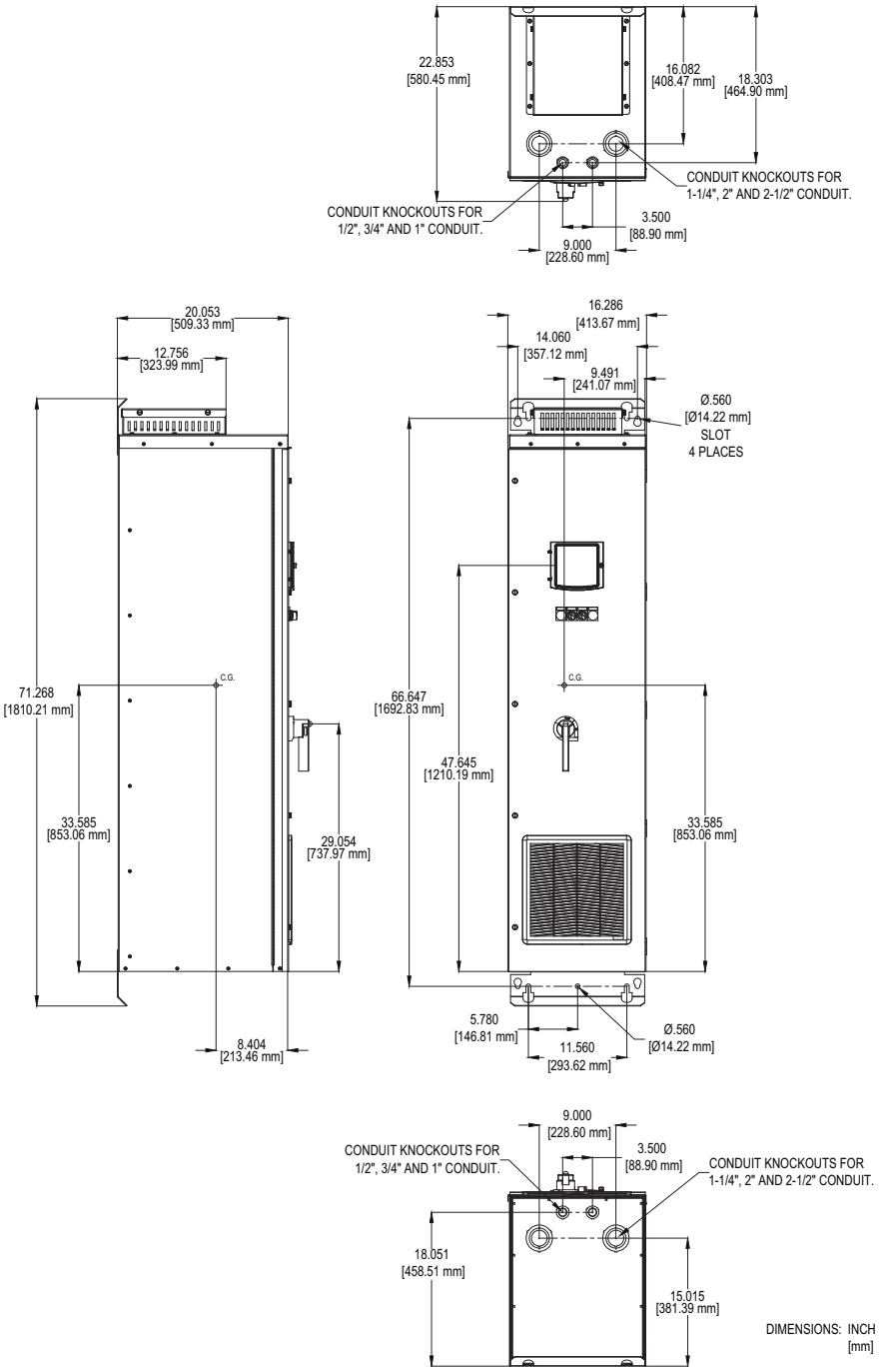

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Figure 19 – Frame Size D, Type 12K Seismic: 40 hp @ 208/230 Vac and 50–100 hp @ 460 Vac

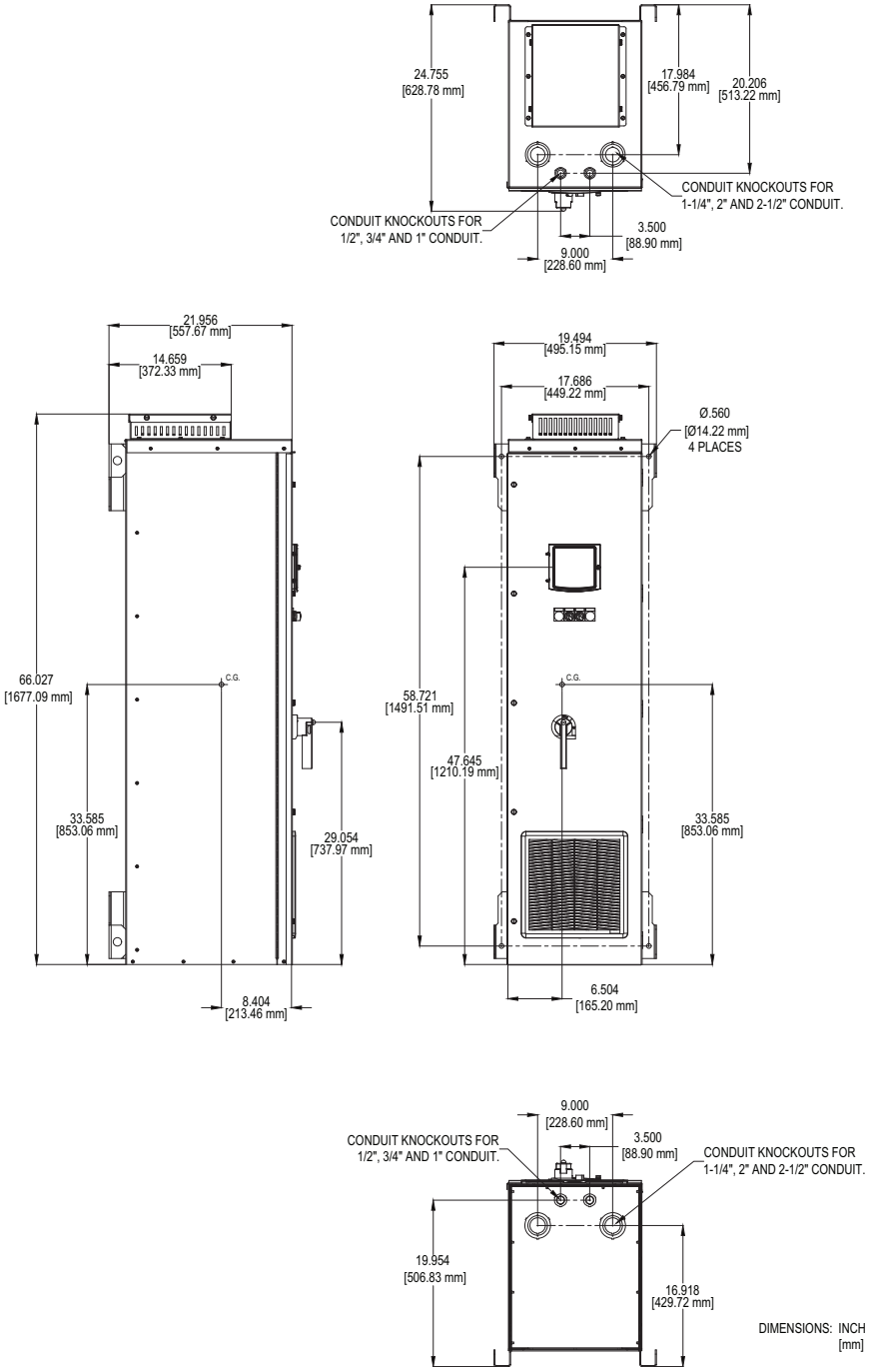

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Figure 20 – Frame Size A, Type 3R: 1–5 hp @ 208/230 Vac and 1–7.5 hp @ 460 Vac

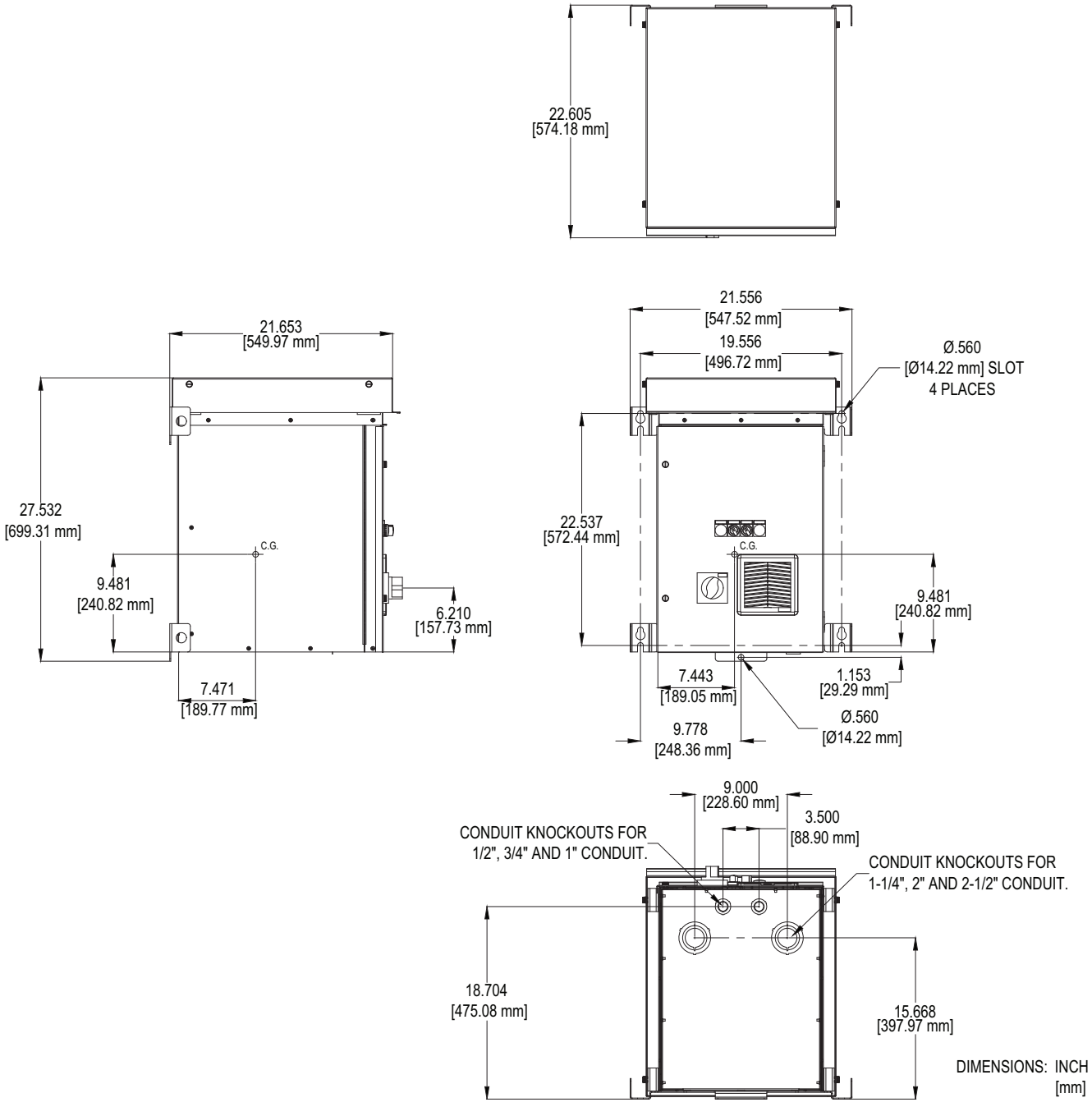

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Figure 21 – Frame Size A, Type 3R Seismic: 1–5 hp @ 208/230 Vac and 1–7.5 hp @ 460 Vac

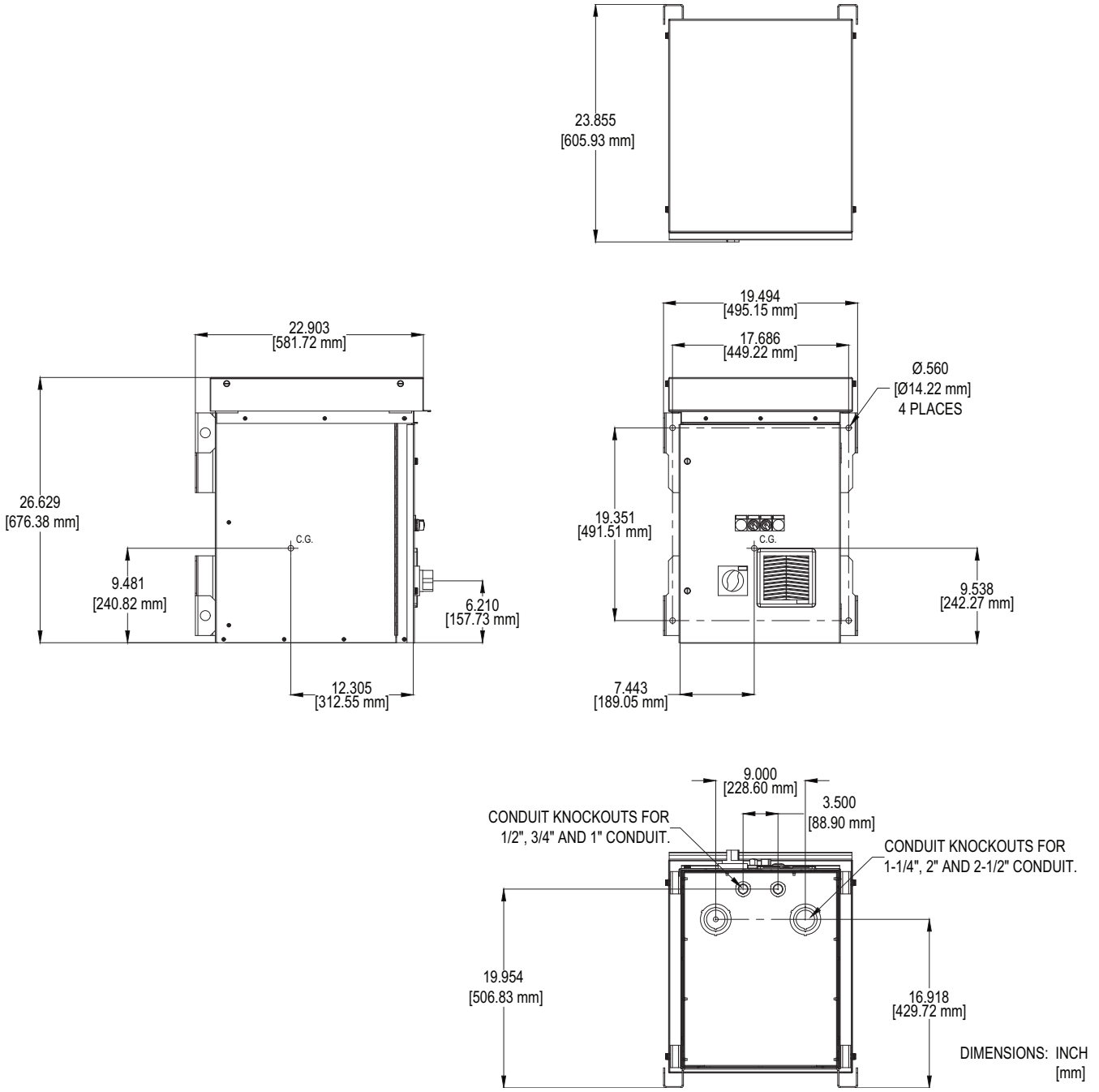

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Figure 22 – Frame Size B, Type 3R: 7.5–10 hp @ 208/230 Vac and 10–15 hp @ 460 Vac

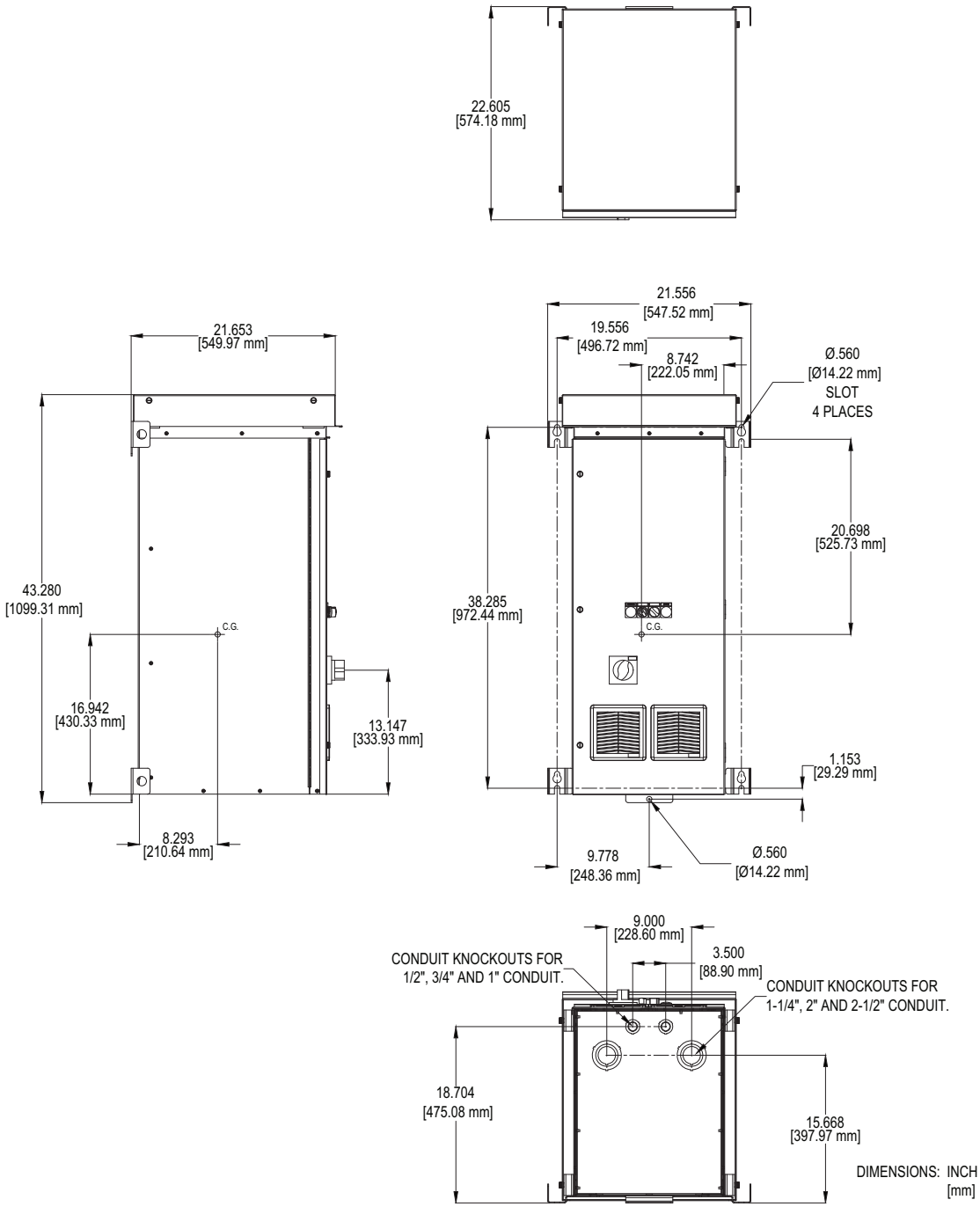

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Figure 23 – Frame Size B, Type 3R Seismic: 7.5–10 hp @ 208/230 Vac and 10–15 hp @ 460 Vac

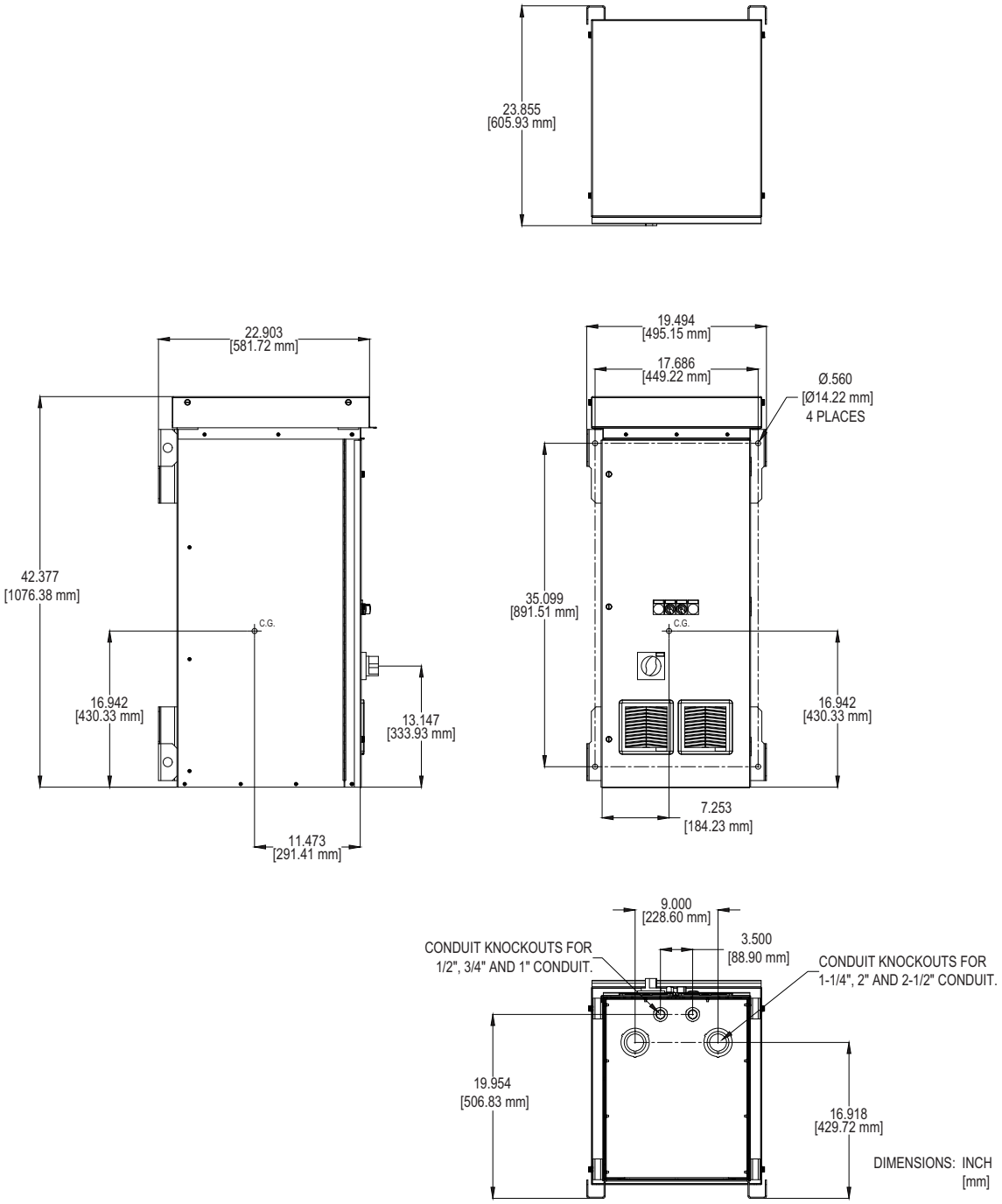

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Figure 24 – Frame Size C, Type 3R: 15–30 hp @ 208/230 Vac and 20–40 hp @ 460 Vac

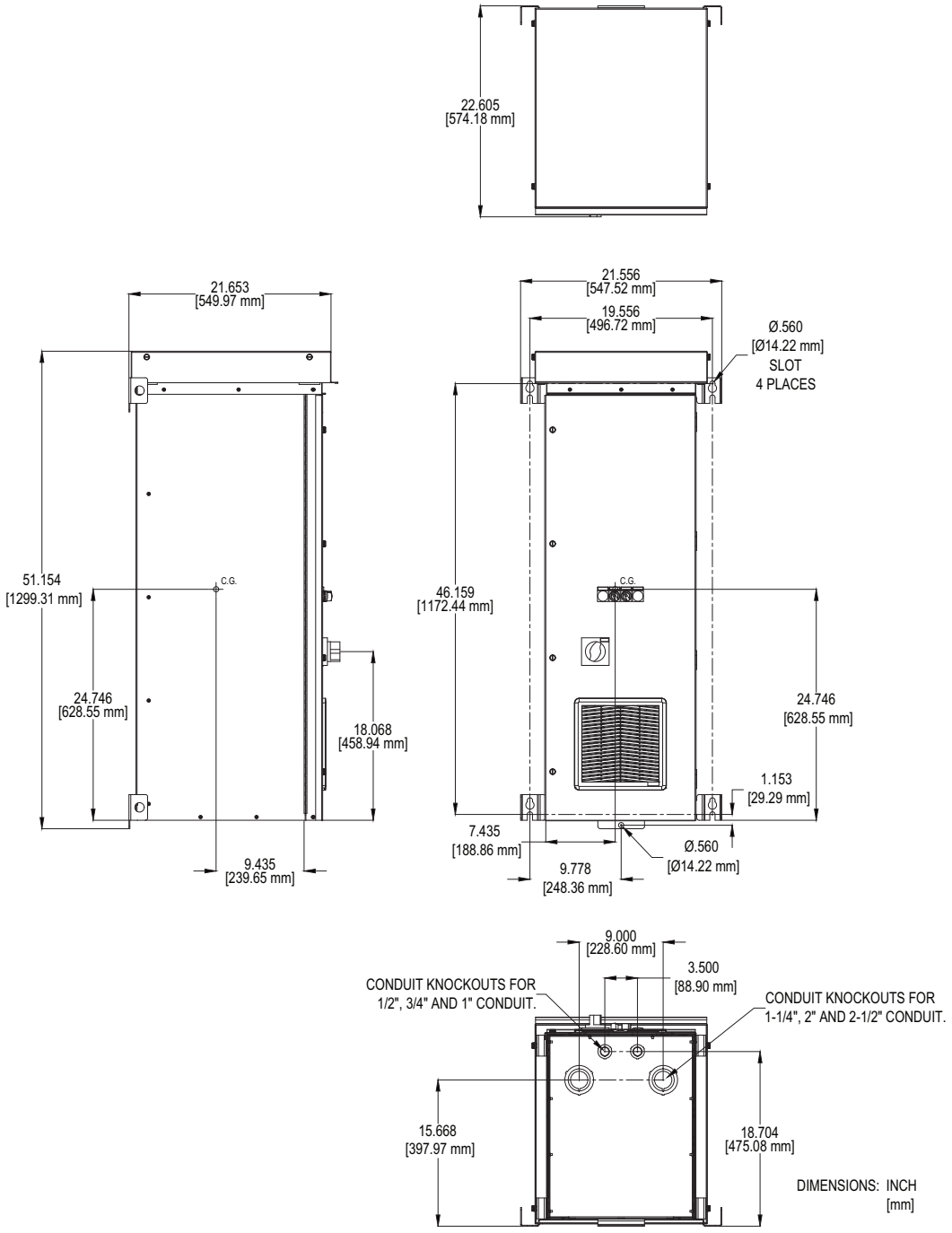

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Figure 25 – Frame Size C, Type 3R Seismic: 15–30 hp @ 208/230 Vac and 20–40 hp @ 460 Vac

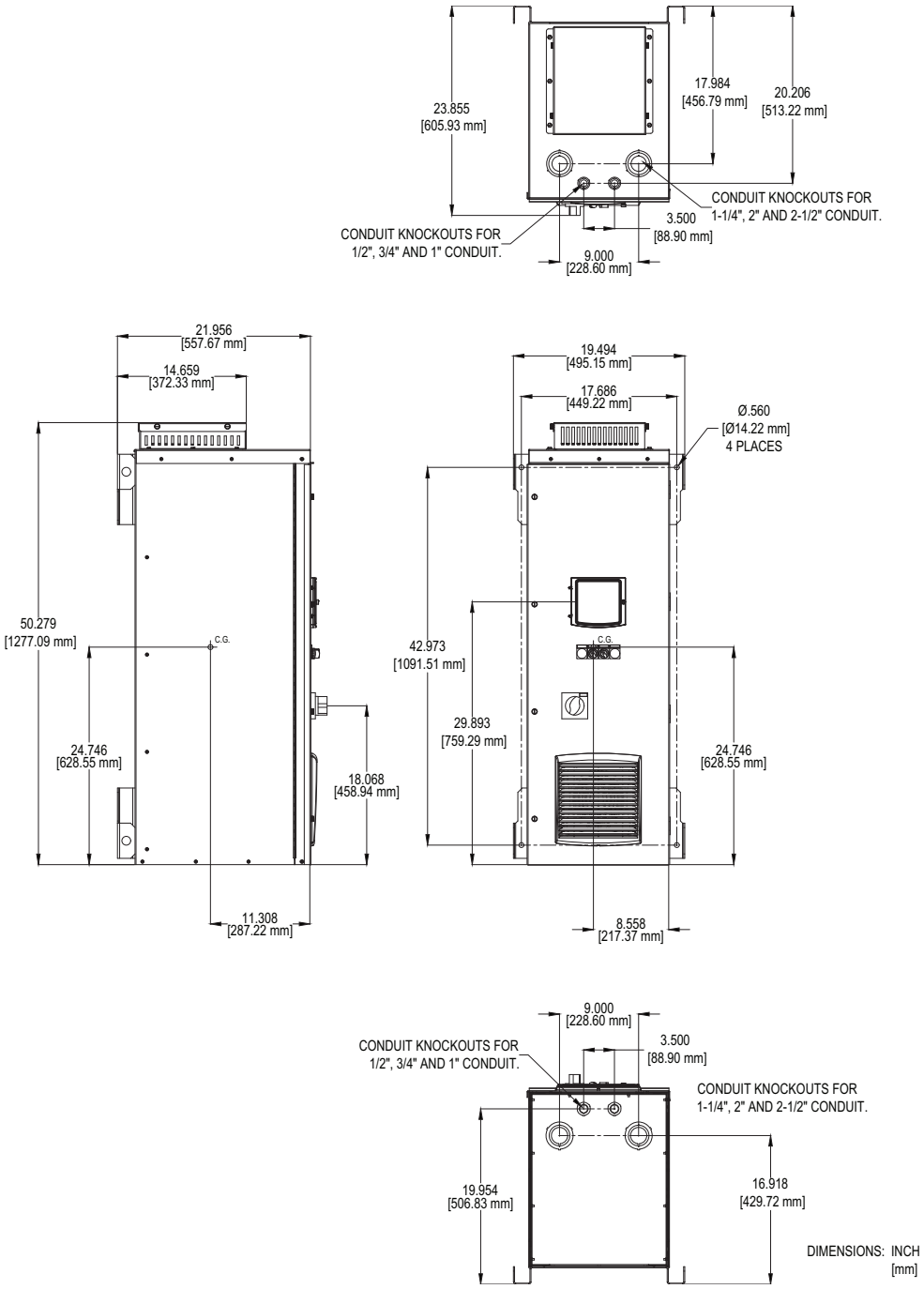

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Figure 26 – Frame Size D, Type 3R: 40 hp @ 208/230 Vac and 50–100 hp @ 460 Vac

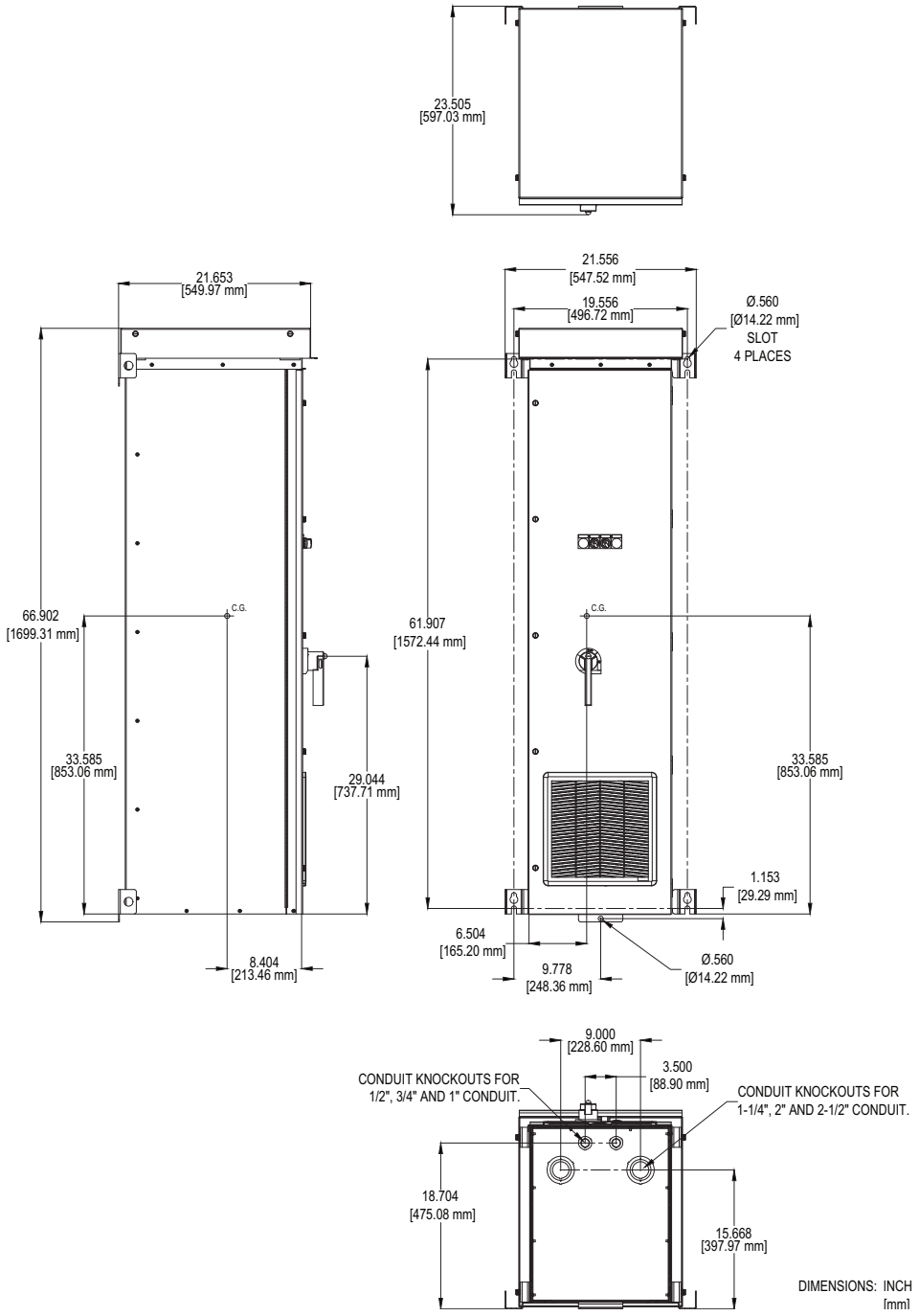

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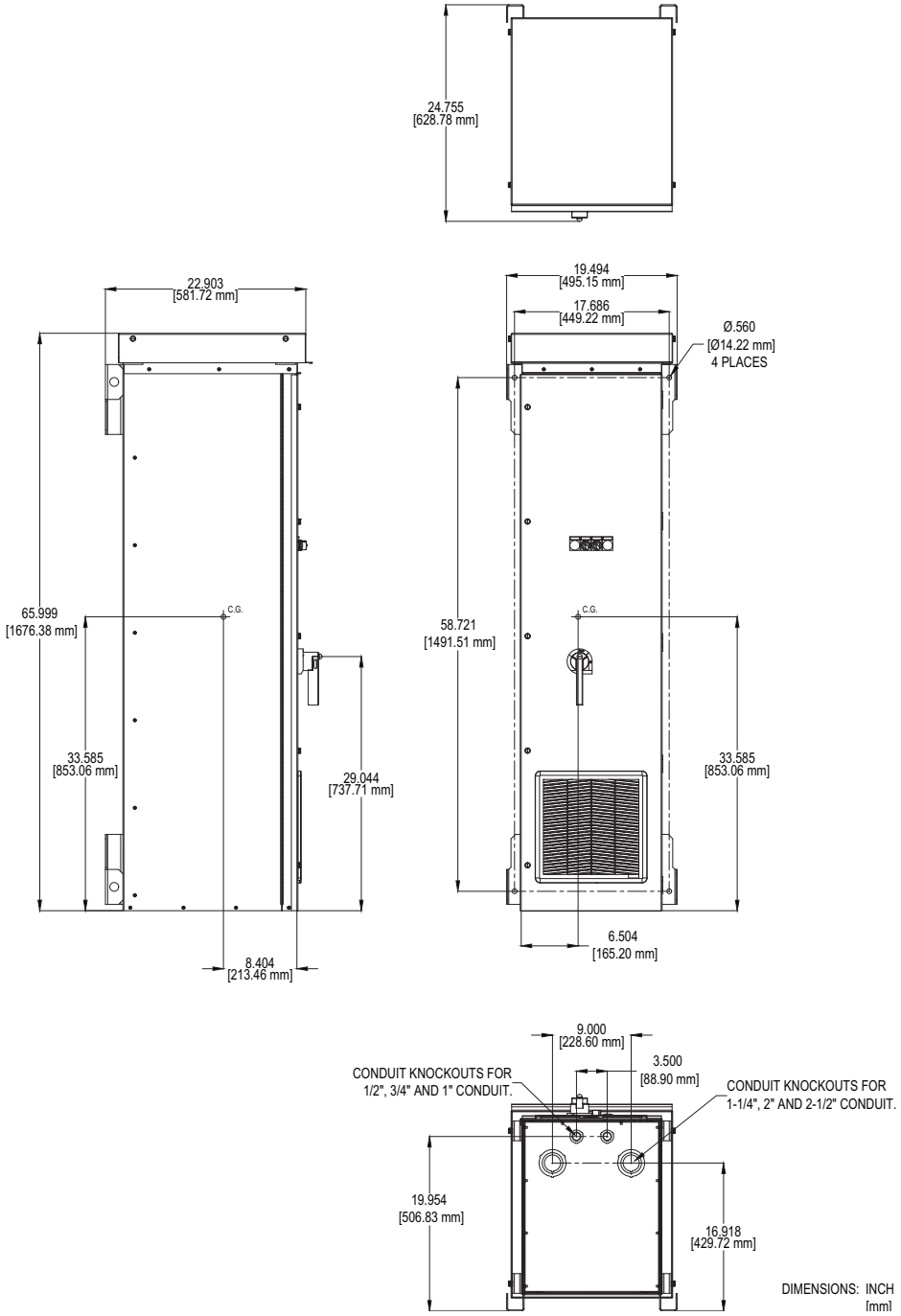
Figure 27 – Frame Size D, Type 3R Seismic: 40 hp @ 208/230 Vac and 50–100 hp @ 460 Vac



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Mounting Requirements

⚠ WARNING

IMPROPER MOUNTING

Before removing the lifting mechanism:

- Ensure that all hardware is of sufficient size and type for the enclosed drive's weight.
- Secure and tighten all hardware.
- If using knockouts for conduit entry, exercise care to prevent metal or chips from falling on parts and electronic printed wiring boards.
- When cleaning the interior and exterior of the enclosed drive, use a vacuum. Do not use compressed air, as it may blow contaminants into other parts of the enclosed drive.
- Check the enclosure for damage that might reduce electrical clearances.
- See Figures 4–27 on pages 21–44 for mounting dimensions and clearances, and location of conduit entry areas.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Mount each device so that the door can be opened at least 90°. The following are spacing recommendations:

- Mount all units with a minimum of 6.0 in. (152 mm) of space to the top and bottom.
- Mount 1–40 hp 208/230 V and 1–60 hp 460 V units with a minimum of 3.5 in. (89 mm) of space to the left and right.
- Mount 75–100 hp 460 V units with a minimum of 4.0 in. (102 mm) of space to the left and right.

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Mounting on an EZM Mounting Channel (Type 1 Only)

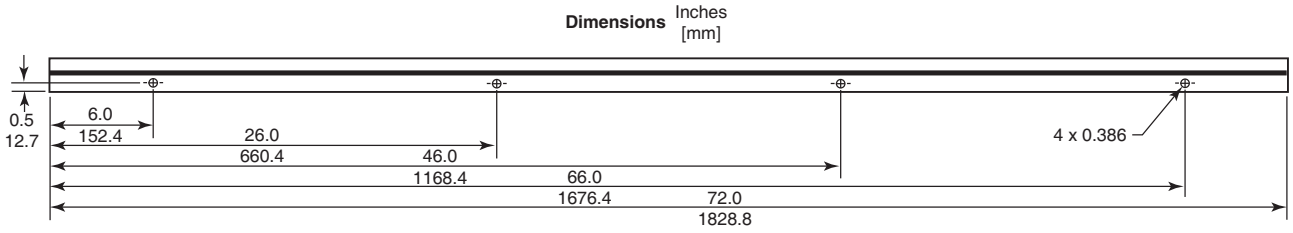
This section explains how to mount Type 1 enclosed drives on an EZM72MC mounting channel. This mounting method is available for:

- Frame size A enclosures: 1–15 hp @ 460 V, 1–10 hp @ 208/230 V
- Frame size B enclosures: 20–25 hp @ 460 V, 15–25 hp @ 208/230 V
- Frame size C enclosures: 30–60 hp @ 460 V, 30 hp @ 208/230 V

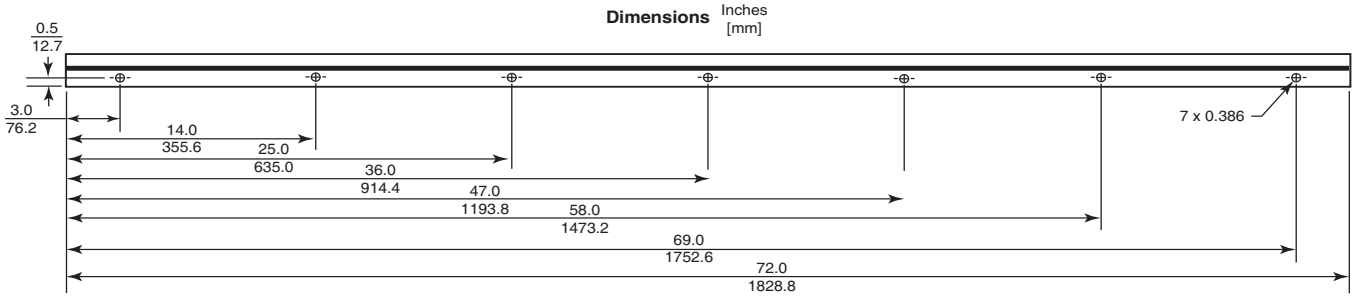
NOTE: EZM mounting cannot meet seismic requirements. Normal mounting methods must be used to meet seismic requirements.

The EZM channel is used to mount enclosures or assist in the alignment of multiple enclosures. Observe the following requirements for EZM mounting:

- Securely fasten the EZM mounting channel to a wall that is rated to support the total weight of the enclosed drives.
- Add additional wall anchor points to the EZM mounting channel as follows, with consideration given to wall construction:
  - **Frame size A enclosures only**: For a 72 in. long rail with a maximum of six size A enclosed drives, do not locate the rail anchor points more than 6 in. from each end, and do not allow more than 20 in. between each additional anchor point.



  - **Frame size B and C enclosures:** For a 72 in. long rail with a maximum of four size B or C enclosed drives (or any combination of these enclosed drives), do not locate the rail anchor points more than 3 in. from each end, and do not allow more than 11 in. between each additional anchor point.



- Use SAE grade 5-3/8 in. or better hardware to secure the rail to the wall. Use additional anchor hardware if needed for the material used in the wall construction.
- Add additional 5/16 in. hardware to the bottom flange of the enclosure. See Figure 28.

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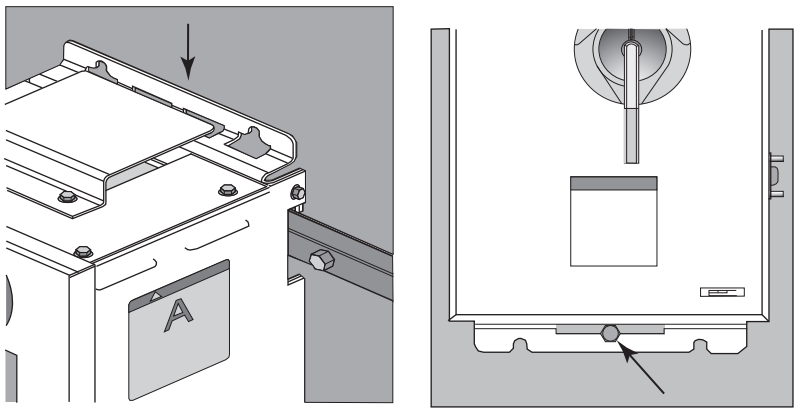
Figure 28 – EZM Mounting Hardware



Seismic Qualification Mounting Criteria

Seismic qualification (MOD S07) harmonizes the following standards in compliance to ICC ES AC156 acceptance criteria test protocol with an importance factor of 1.5:

- IBC (International Building Code)
- NFPA 5000 (Building Code-National Fire Protection Agency)
- CBC (Canadian Building Code)
- ASCE/SEI 7 (American Society of Civil Engineers)
- California Building Code

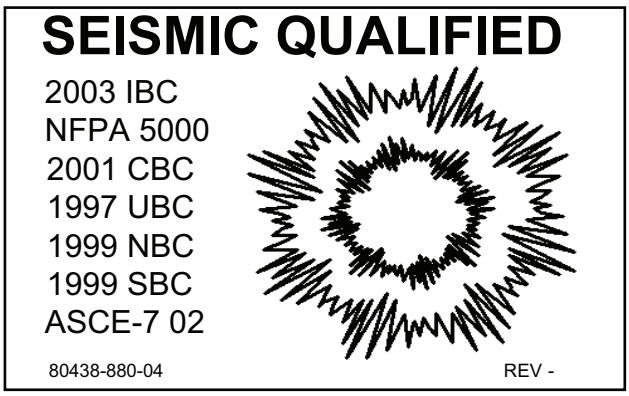
For seismic rating installation compliance:

- Follow the anchorage and mounting guidelines on the seismic qualification labels attached to the enclosed drive.
- For Type 1 enclosures, use SAE Grade 5 bolts and washers. For Type 12 and 3R enclosures, use SAE Grade 8 bolts and washers.
- Torque all bolts to applicable SAE standards, considering all plating and lubricant factors.

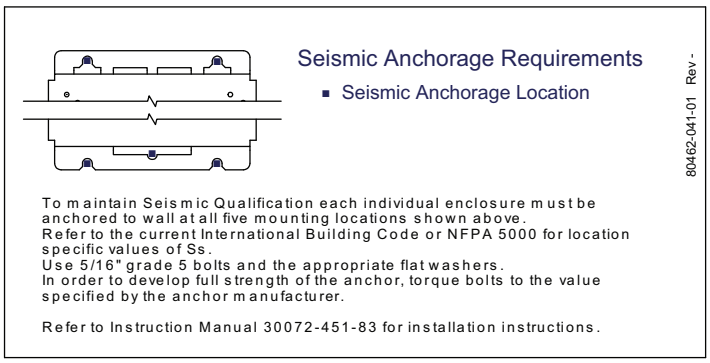
For additional information on Seismic qualification of enclosed drives, refer to instruction bulletin 30072-454-87, *Seismic Qualification of Enclosed Drives and Soft Starters*.

Figure 29 – Seismic Qualification Labels

Certification Label



Wall Mounting



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Electrical Installation

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Turn off all power (main and remote) before installing the equipment. Refer to "Before You Begin" starting on page 8 for important information and precautions.

Failure to follow these instructions will result in death or serious injury.

General Wiring Practices

Before wiring the enclosed drive, perform the DC Bus Voltage Measurement Procedure on page 56. Good wiring practice requires the separation of control circuit wiring from all power wiring. Power wiring to the motor must have the maximum possible separation from all other power wiring, whether from the same drive or other drives.

Do not run power and/or control or multiple power wiring in the same conduit. This separation reduces the possibility of coupling electrical transients from power circuits into control circuits or from motor power wiring into other power circuits.

⚠ CAUTION

IMPROPER WIRING HAZARD

Follow the wiring practices described in this document in addition to those already required by the applicable national and local electrical codes.

Failure to follow these instructions can result in injury or equipment damage.

Follow the practices below when wiring the S-Flex enclosed drive:

- Use the supplied knockouts to feed control wiring into the cabinet. Do not run control wires through the enclosed drive vents or rear air intake.
- Use metallic conduit for all wiring. Do not run control and power wiring in the same conduit.
- Separate metallic conduits carrying power wiring or low-level control wiring by at least 3 inches (76 mm).
- Separate existing, non-metallic conduits or cable trays used to carry power wiring from metallic conduit carrying low-level control wiring by at least 12 inches (305 mm).
- Whenever power and control wiring cross, the metallic conduits and non-metallic conduits or trays must cross at right angles.
- Equip all inductive circuits near the enclosed drive (relays, contactors, solenoid valves) with noise suppressors.
- Tighten all electrical connections to their proper torque values. See the nameplate information for line and load torque values. Torque values are also listed in Tables 10 and 12 on pages 67 and 69.

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Input Power

The S-Flex enclosed drive operates from a three-phase supply connected to its input. The disconnect is coordinated and tested with the enclosed drive power circuit for a short-circuit current rating of 100,000 A.

Branch Circuit Connections

Size all branch circuit components and equipment—such as feeder cables, disconnect devices, and protective devices—in accordance with national and local electrical codes based on the drive input current or motor full load current (whichever is greater).

The input current and the enclosed drive's rated FLA are printed on the nameplate (see Figure 1 on page 12). Refer to Table 3 on page 12 for the enclosed drive's input currents. Refer to Tables 10–12 (pages 67–69) for lug data and wire range of enclosed drive input terminals L1, L2, and L3.

Connect input power leads L1, L2, and L3 to the input of the circuit breaker or disconnect switch.

Input Wiring

⚠ WARNING

IMPROPER OVERCURRENT COORDINATION

- Properly coordinate all protective devices.
- Do not connect the enclosed drive to a power feeder whose short circuit capacity exceeds the short-circuit current rating listed on the enclosed drive's nameplate.

Failure to follow these instructions can result in death or serious injury.

⚠ CAUTION

EQUIPMENT DAMAGE FROM IMPROPER WIRING

- Do not connect input power leads to the enclose drive's output terminals (T1, T2, T3 or U, V, W). This damages the enclosed drive and voids the warranty.
- Check the power connections before energizing the enclosed drive.

Failure to follow these instructions can result in injury or equipment damage.

Size the ampacity of the input power conductors in accordance with national and local electrical codes based on the enclosed drive's input current or motor full load current (whichever is greater).

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Grounding

Ground the S-Flex enclosed drive in accordance with national and local electrical codes. To ground the enclosed drive:

- Connect a copper wire from the grounding bar terminal to the power system ground.
- Verify that the resistance to ground is 1 Ω or less. Improper grounding causes intermittent and unreliable operation.
- Do not remove any internal ground wires or connections.

⚠ DANGER

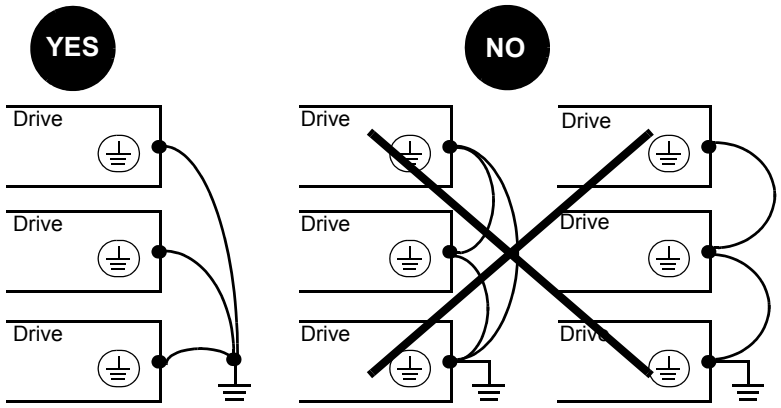
HAZARD OF ELECTRIC SHOCK

- Ground equipment using the provided grounding connection point as shown in Figure 31 (Type 1) or Figure 32 (Type 12K/3R) on pages 53–54. The drive panel must be properly grounded before power is applied.
- Do not use metallic conduit as a grounding conductor.

Failure to follow these instructions will result in death or serious injury.

Ground multiple enclosed drives as shown in Figure 30. Use one grounding conductor per device. Do not loop grounding conductors or install them in series.

Figure 30 – Grounding Multiple Enclosed Drives



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Connection to Ungrounded or High-Resistance Grounded Systems

⚠ CAUTION

EQUIPMENT DAMAGE FROM MAINS SERVICE CONFIGURATION

- The RFI filter ground connection must be removed when connecting the enclosed drive to a system supplied by an ungrounded delta, corner grounded delta, open delta, or resistance grounded delta transformer.
- When applying enclosed drives on open delta systems, measure the current imbalance at full load to confirm that the current imbalance does not exceed five percent.

Failure to follow these instructions can result in injury or equipment damage.

Altivar 212 480 V drives feature built-in radio frequency interference (RFI) filters with grounded capacitors. When applying the enclosed drive on an ungrounded delta, corner grounded delta, or open delta connected system, or on any resistance grounded system, isolate the RFI filters from ground to help prevent reduction of their operating life.

Refer to the *Altivar 212 Installation Guide,* S1A53832*,* for information on disconnecting the filter ground. The installation manual is available online at www.schneider-electric.com.

A system supplied by an open delta transformer may be susceptible to voltage fluctuations and current imbalance, which can damage the enclosed drive and other connected equipment.

- Exercise care when applying equipment on a power system where the voltage is derived in this way.
- To reduce the potential for a current imbalance, always include a line reactor option with the enclosed drive.
- During commissioning, measure the input current at full load to confirm that the current imbalance does not exceed five percent.
- If the imbalance exceeds five percent, discontinue use of the equipment and contact technical support.

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Wiring and Electromagnetic Compatibility

⚠ WARNING

LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop and over travel stop.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of anticipated transmission delays or failures of the link[1].
- Each implementation of a S-Flex enclosed drive must be individually and thoroughly tested for proper operation before being placed into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

[1] For additional information, refer to NEMA ICS 1.1 (latest edition), “Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control” and to NEMA ICS 7.1 (latest edition), “Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems.”

The high frequency equipotential grounding connection between the drive, motor, and cable shielding does not eliminate the need to connect the grounding (PE) conductors (green-yellow) to the appropriate terminals on each unit. To help accomplish this, follow these guidelines:

- To avoid communication interference, grounds between the drive, motor and cable shields must have high frequency equipotentiality.
- When using shielded cable for the motor, use a 4-conductor cable so that one wire will be the grounding connection between the motor and the drive. Size the grounding conductor in compliance with local and national codes. The shield can then be grounded at both ends. Metal ducting or conduit can be used for part or all of the shielding length, provided there is no break in continuity.
- When using shielded cable for control signals, if the cable is connecting equipment that is close together and the grounds are bonded together, then both ends of the shield can be grounded. If the cable is connected to equipment that may have a different ground potential, then ground the shield at one end only to prevent large currents from flowing in the shield. The shield on the ungrounded end may be tied to ground with a capacitor (for example: 10 nF, 100 V or higher) in order to provide a path for the higher frequency noise.
- Ensure maximum separation between the power supply cable (line supply) and the motor cable and also ensure maximum separation between the control cables and any power cables.

Connecting the motor ground wire directly to the power converter chassis as shown in Figure 31 (Type 1) or Figure 32 (Type 12K/3R) on pages 53–54 is the preferred grounding method. This method reduces the a mount of high frequency noise generated by the power converter PWM that may be coupled into communication or control wiring. The drive has two or more marked terminals for making grounding connections.

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Figure 31 – Generic Type 1 Grounding Connection Diagram

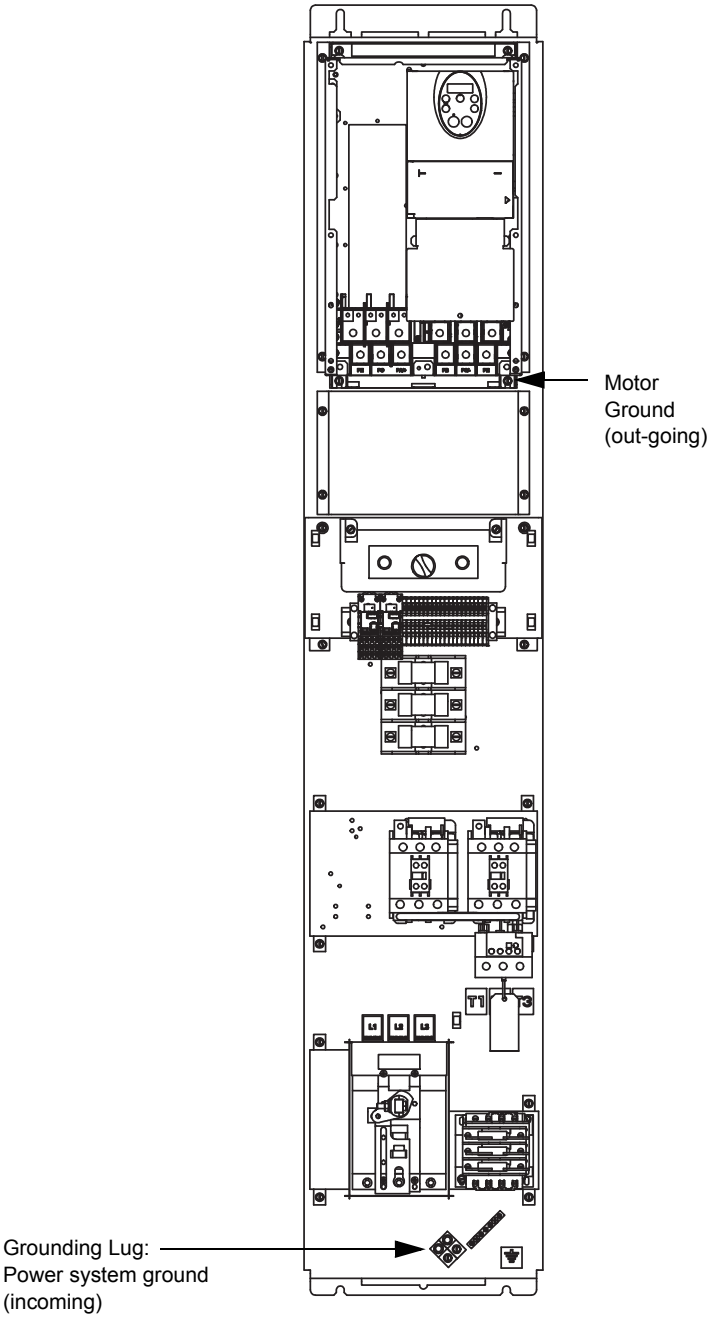

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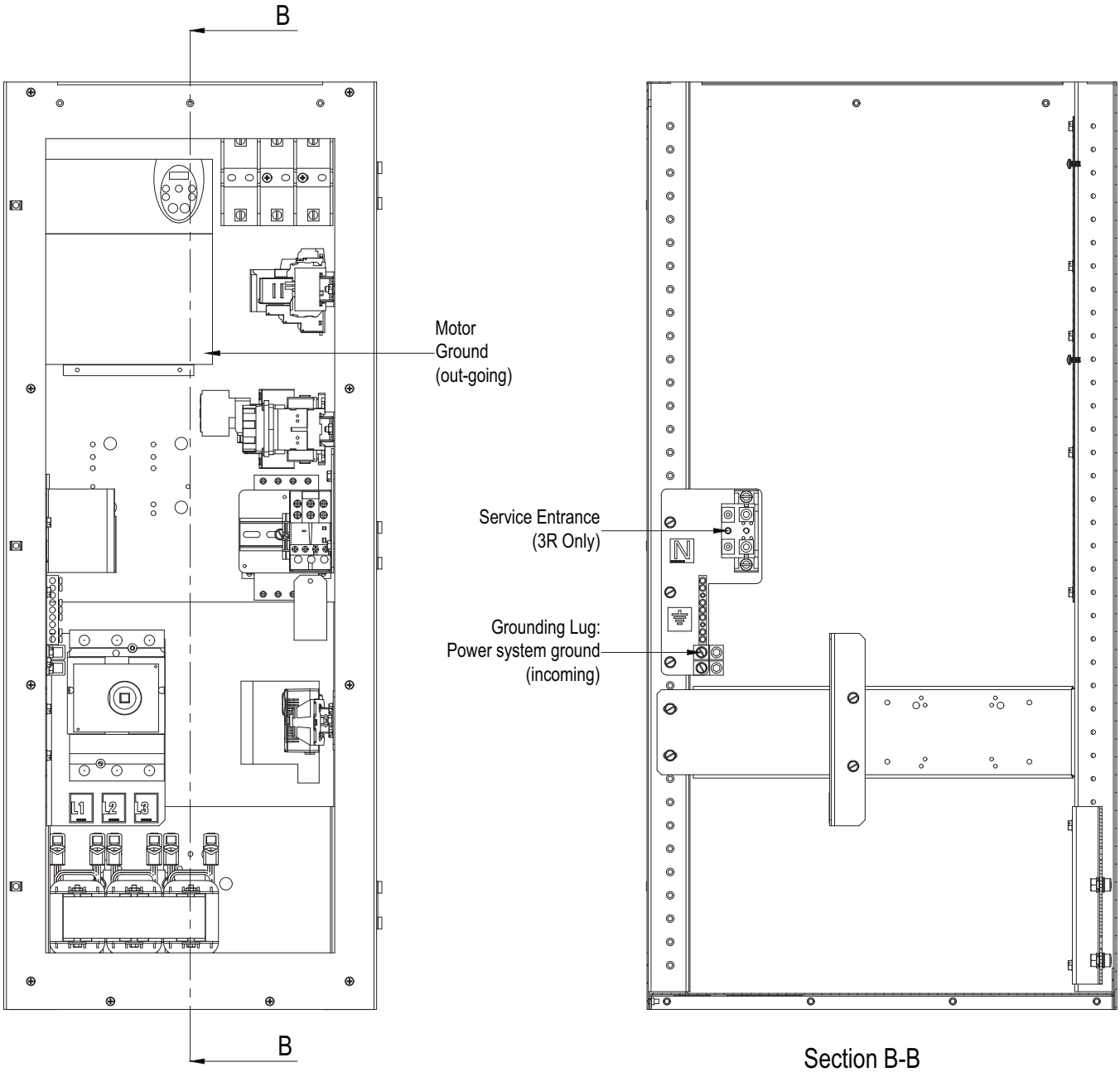
Figure 32 – Type 12K/3R Grounding Connection Diagram



Output Wiring

Size the ampacity of motor power conductors according to the motor full load current and in accordance with national and local electrical codes.

Connect motor conductors to the lugs provided and connect the motor ground to the power converter chassis. Connect motor conductors to T1, T2, and T3 on the overload relay when the enclosed drive is supplied with a bypass circuit. Connect motor conductors to T1/U, T2/V, and T3/W on the power converter, or T1, T2, and T3 on the distribution block (if supplied), when the enclosed drive is supplied without a bypass circuit. See Figure 33 on page 60.

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NOTE: For applications where output cable length exceeds 164 feet (50 meters), consult Schneider Electric.

The drive is sensitive to the amount of capacitance (either phase-to-phase or phase-to-ground) present on the output power conductors. If excessive capacitance is present, the drive may trip on overcurrent.

Output Cable

Follow these guidelines when selecting output cable:

- Cable type: select cable with a low capacitance phase-to-phase and to ground. Do not use mineral-impregnated cable because it has a very high capacitance. Immersion of cables in water increases capacitance.
- Cable length: the longer the cable, the greater the capacitance. Cable lengths greater than 164 ft (50 m) may appear as a ground fault condition to the drive. For installations where cable capacitances may be a problem, a reactor or motor protection filter can be installed between the drive and the motor.

The following guidelines are designed to address maximum cable length for typical drive/motor applications.

These limits are based on the maximum recommended peak voltage that can be allowed at the motor terminals, which is due to the reflected wave phenomenon. This increase in voltage is primarily determined by the degree of impedance mismatch between the power conductor and the motor in combination of the dV/dt of the specific semiconductors used in the inverter section of the drive feeding the motor, both of which vary depending on the horsepower involved.

- Many variables can affect the performance of the drive, the motor, and the cables in long lead applications. Motor protection filters can provide substantial benefits when you are using:
  - 460 V or higher rated AC drives
  - Existing general purpose motors subject to retrofit to an AC drive
  - Shielded cables
- NEMA MG-1 Part 31 compliant motors are recommended but not required. However, consult the motor manufacturer or vendor literature to address any specific limitations governing the application.
  - Proximity to other output cables: because of high frequency switching and increased capacitance, the drive may trip under some conditions.
  - **Do not use lightning arrestors or power factor correction capacitors on the output of the drive.**

For proper drive short circuit protection, certain values of inductance may be required in the output power wiring. Inductance can be supplied by the power wiring or auxiliary inductors.

⚠ CAUTION

INSUFFICIENT OUTPUT INDUCTANCE

Provide at least 500 mm (20 in.) of cable at the drive output (U/T1, V/T2, W/T3) to help protect the drive output when short circuits occur.

Failure to follow these instructions can result in injury or equipment damage.

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DC Bus Voltage Measurement Procedure

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Read and understand the DC Bus Voltage Measurement Procedure before performing the procedure.
- Measurement of bus capacitor voltage must be performed by qualified personnel.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E®, CSA Z462, NOM-029-STPS, and other applicable regulations defining safe electrical work practices.
- DO NOT short across terminals PA/+ and PC/– or across the DC bus capacitors.
- DO NOT touch unshielded components or terminal strip screw connections with voltage present.
- Use only electrically insulated tools.
- Before servicing the enclosed drive:
  - — Disconnect all power including external control power that may be present.
  - — Always use a properly rated voltage sensing device to confirm power is off.
  - — Place a “DO NOT TURN ON” label on all power disconnects.
  - — Lock all power disconnects in the open position.
  - — WAIT 15 MINUTES to allow the DC bus capacitors to discharge. Then follow the DC Bus Voltage Measurement Procedure below to verify that the DC voltage is less than 42 V. The drive LED is not an indicator of the absence of DC bus voltage.
- Replace all devices, doors, and covers before turning on power to this equipment or starting and stopping the enclosed drive.

Failure to follow these instructions will result in death or serious injury.

The DC bus voltage level is determined by monitoring the PA/+ and PC/– terminals. The location of these terminals varies by power converter model number. Read the model number of the power converter from the nameplate, and identify the corresponding PA/+ and PC/– terminals. See Figure 1 on page 12.

To measure the DC bus capacitor voltage:

1. Remove all power from the enclosed drive. Use a properly rated voltage sensing device to confirm power is off. Also, be sure to remove all external control power that may be present such as on the control board and the option board terminals.
2. Open the disconnect between the input line and the enclosed drive. Lock the disconnect in the open position and install a “Do Not Turn On” sign. Open the circuit breaker disconnect located on the front of the enclosed drive. Be sure to remove all external control power that may be present, such as on the control board and the option board terminals.
3. Wait fifteen minutes for the DC bus capacitors to discharge.
4. Open the door of the enclosed drive.
5. Set the voltmeter to the 1000 Vdc scale. Measure the voltage between the PA/+ and PC/– terminals.

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6. Verify that the DC bus voltage has discharged below 42 V before servicing the drive. If the DC bus capacitors will not discharge below 42 V, contact your local Schneider Electric representative. **Do not operate the drive.**
7. After servicing the enclosed drive, close and secure door.

Wire Routing and Interconnection

Wire Class

The Wire Class describes the compatibility of the field wiring terminal with the conductor material and insulation system. When used in conjunction with the required conductor current rating and the enclosed drive ambient temperature rating, the Wire Class forms the basis for selecting a conductor size that limits the temperature on the conductor insulation at the field wiring terminal to acceptable limits. Conductors with operating temperatures exceeding those given by the Wire Class can be used, but the conductor size must be selected based on the Wire Class limits.

Noise Class

The Noise Class categorizes the electromagnetic properties of the voltages and currents present. The six Noise Class categories determine proper wiring methods and physical segregation.

Quiet Wiring 1 (QW1) *High-susceptibility analog and digital control signals.* Signals falling under the classification of QW1 include digital communication/network circuits, enclosed drive analog I/O and analog process signals.

Quiet Wiring 2 (QW2) *Medium-susceptibility analog and digital control signals.* Signals falling under the classification of QW2 include 24 Vdc and 24 Vac control circuits.

Standard Wiring 1 (SW1) *Low-Susceptibility control or power circuits rated less than 600 Vac (250 Vdc) and less than 15 A* (voltage and current spectra are generally contained within 0.05–9 kHz). Signals falling under the classification of SW1 include 120 Vac control circuits.

Standard Wiring 2 (SW2) *Power circuits rated greater than 15 A* (voltage and current spectra are generally contained with 0.05–9 kHz). Signals falling under the classification of SW2 include line power to enclosed drives.

Standard Wiring 3 (SW3) Reserved.

Pulse Wiring 1 (PW1) *Control or power circuits whose voltage or current spectra significantly exceed 9 kHz.* Signals falling under the classification of PW1 include motor and dynamic braking circuits fed from PWM (pulse width modulation) power converters.

Voltage Class

The Voltage Class groups the voltages present into recognized conductor insulation categories (30,150, 300, and 600 V) for selection of conductor insulation voltage rating and physical segregation.

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Wiring Methods

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Route and secure all conductors to prevent damage to insulation when installing them under or near sharp edges.
- When possible, use jacketed conductors.

Failure to follow these instructions will result in death or serious injury.

Based on the Noise Class and Voltage Class of the conductors, apply the wiring methods in Table 8 to the enclosed drive.

Table 8 – Wire Routing and Interconnection

Wiring Methods and Considerations	Noise Class of Conductors[1]				
	QW 1	QW 2	SW 1	SW 2	PW 1
Conductor Grouping in Wireways and Conduits					
1. Bundle all conductors of 1- or 3-phase AC power circuits to minimize stray magnetic fields.			X	X	X
2. Bundle all conductors of a DC power circuit to minimize stray magnetic fields.			X	X	X
3. When parallel conductors must be run in separate wireways or conduit, bundle the conductors into groups to minimize stray magnetic fields.				X	X
4. Maintain conductor runs that are as short and direct as possible.	X	X	X	X	X
Separation of Circuits					
1. Do not run different Noise Class conductors in the same conduit.	X	X	X	X	X
2. Do not run different Voltage Class conductors in the same conduit unless all conductors are insulated for the maximum Voltage Class present.	X	X	X	X	X
3. Separate all conductors by Noise Class. Use the following circuit separation when conductors run parallel for more than 12 inches.					
• Metallic conduit: 3 in. from QW to SW or PW	X	X	X	X	X
• Metallic tray: 3 in. from SW to PW			X	X	X
• Metallic tray: 6 in. from QW to SW or PW	X	X	X	X	X
• Against continuous metal surface: 3 in. from SW to PW			X	X	X
• Against continuous metal surface: 6 in. from QW to SW or PW	X	X	X	X	X
• Metallic conduit housing QW: 12 in. to non-metallic conduit SW or PW	X	X	X	X	X
• Non-metallic conduit: 3 in. from SW to PW			X	X	X
• Non-metallic conduit: 23 in. from QW to SW or PW	X	X	X	X	X
4. All PW conductor groups must be individually separated using metallic conduit.					X
5. If QW and SW1 wiring must cross SW2 or PW1 wiring, cross the bundles at right angles.	X	X	X	X	X
Common Mode Noise Issues					
1. Provide adjacent signal returns using twisted pair cable.	X	X			
2. Galvanically isolate the signal and the associated signal return path when possible.	X	X			
Shielding					
1. Use metallic conduit for all power and control circuits external to the enclosed drive's enclosure.	X	X	X	X	X
2. Use shields that are continuous and equipped with a drain wire.	X	X	X		
3. Do not group different Noise Class conductors within the same shield.	X	X	X	X	X
4. Minimize the non-shielded portion of the conductor at the end of the shielded cable.	X	X	X	X	X
5. When shielding AC or DC power conductors, group the conductors to minimize the magnetic field in the shield.			X	X	X

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Table 8 – Wire Routing and Interconnection *(continued)*

Wiring Methods and Considerations	Noise Class of Conductors[1]				
	QW 1	QW 2	SW 1	SW 2	PW 1
Grounding					
1. Ground shields only at the enclosed drive end.	X	X	X	X	X
2. Use a separate ground wire for each shield ground.	X	X	X	X	X
3. Provide a ground wire with all conductor groups, whether in tray or conduit.			X	X	X
4. When multiple grounds must be made to a shielded power cable, the shield must have the same short circuit withstand capability as the grounding conductor in the power cable.			X	X	X
5. Terminate all power grounds and power shield grounds to the enclosed drive grounding point or power converter chassis.			X	X	X
6. Terminate all signal shield grounds to the terminals provided.	X	X			
7. Always supply a separate equipment grounding conductor with the enclosed drive power feed. Do not depend on metallic conduit for the grounding connection.			X	X	X

[1] "X" indicates applicability to the specified Noise Class.

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Component Locations

Figures 33–38 (pages 61–65) show the component identification and terminal strip locations on the S-Flex enclosed drives. Table 10 on page 67 lists the wire size and terminal torque requirements.

Figure 33 – Typical Type 1 Component Identification and Terminal Strip Location, (1–30 hp @ 208/230 Vac & 1–60 hp @ 460 Vac with Line Reactor)

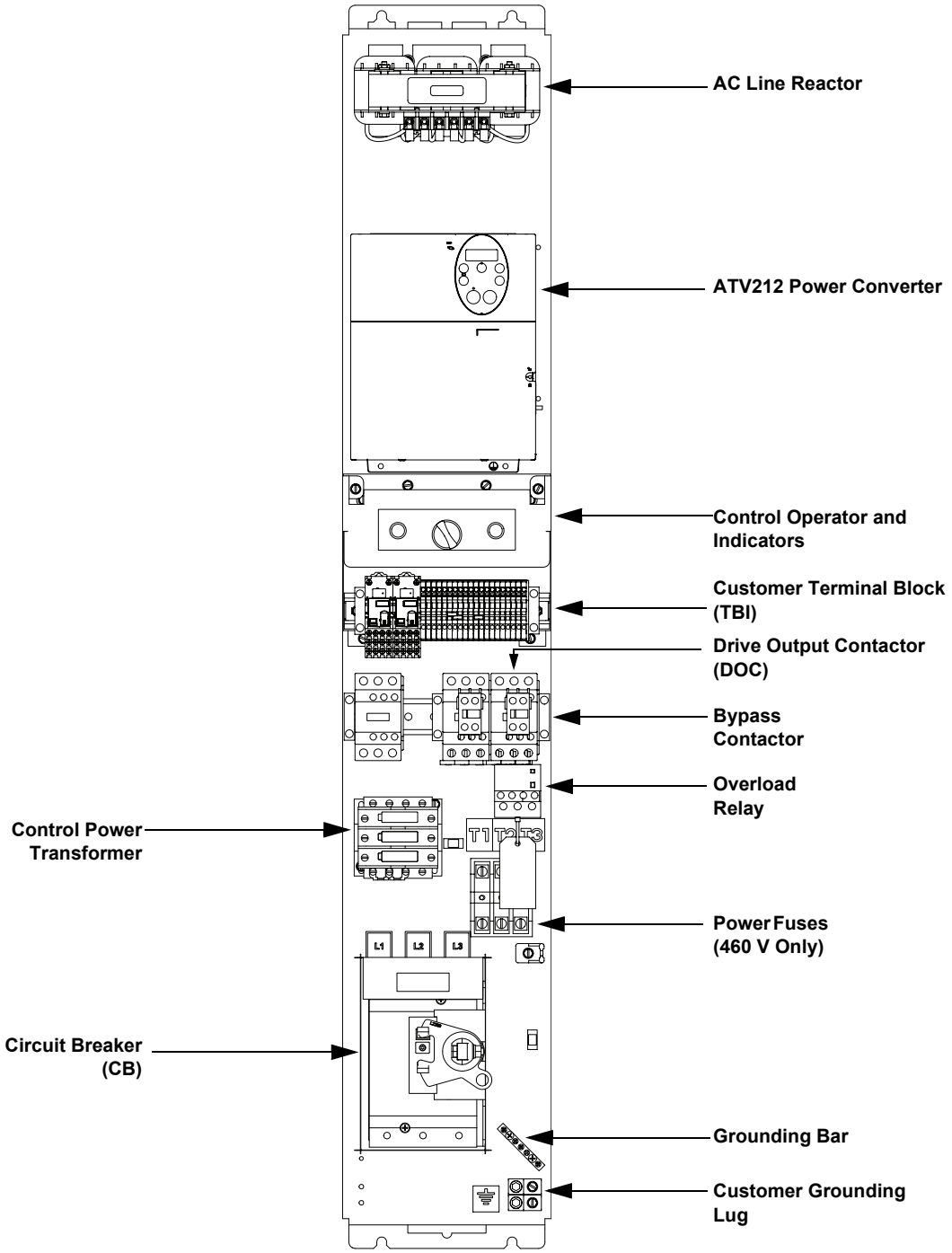

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Figure 34 – Typical Type 1 Component Identification and Terminal Strip Location (40 hp @ 208/230 Vac and 75–100 hp @ 460 Vac)

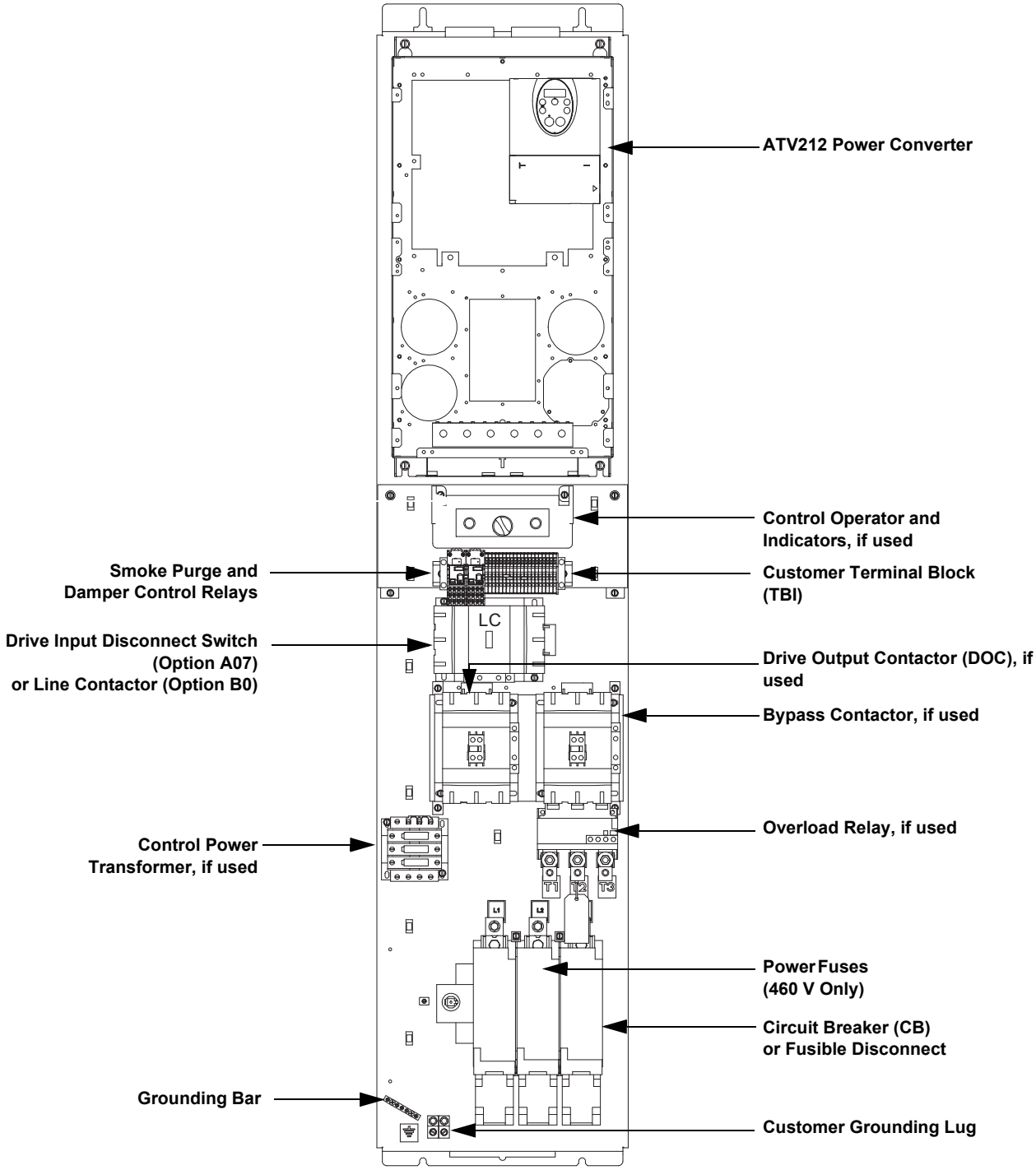

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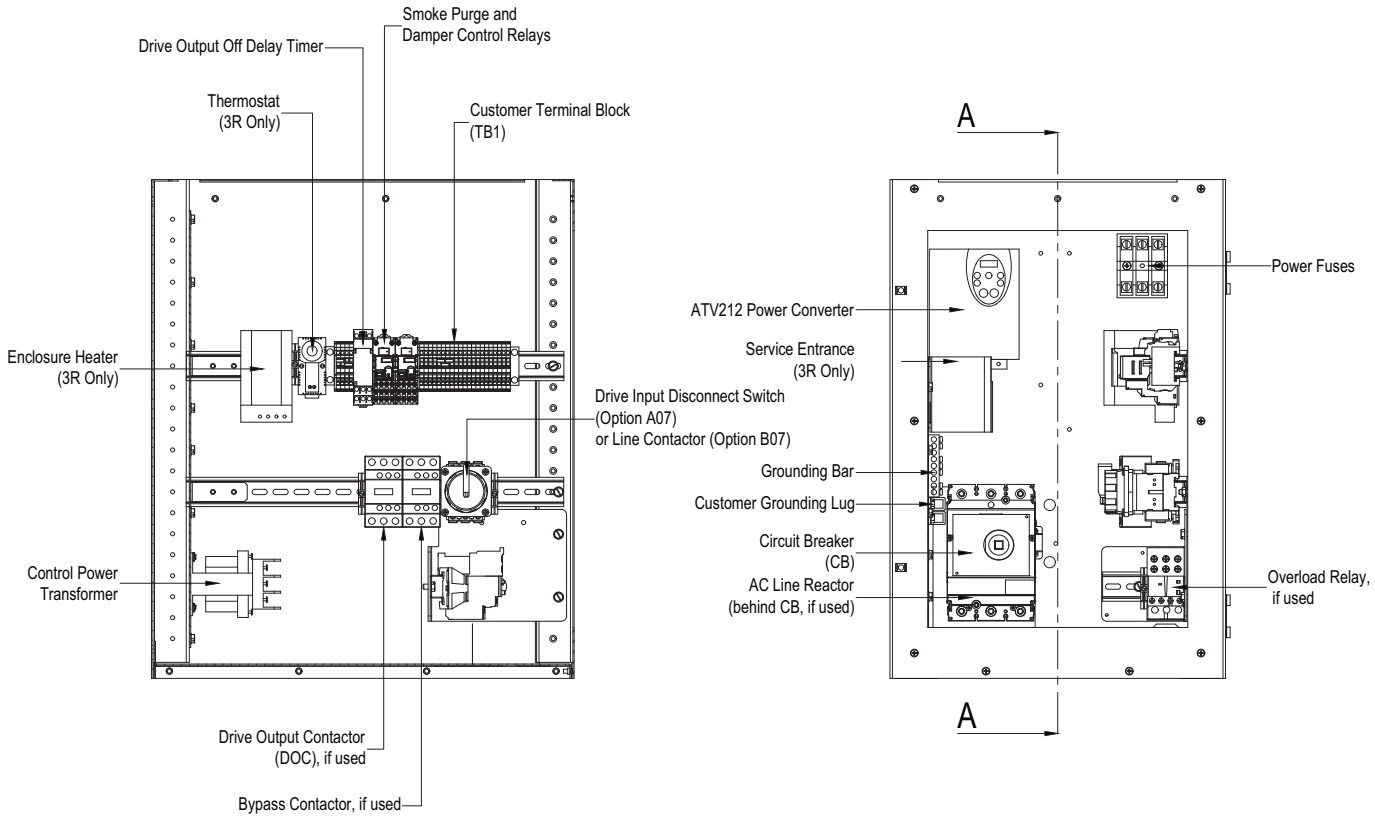
Figure 35 – Type 12K and 3R Typical Component Identification and Terminal Strip Location (1–5 hp @ 208/230 Vac and 1–7.5 hp @ 460 Vac)



Section A-A
(Components Removed for Clarity)

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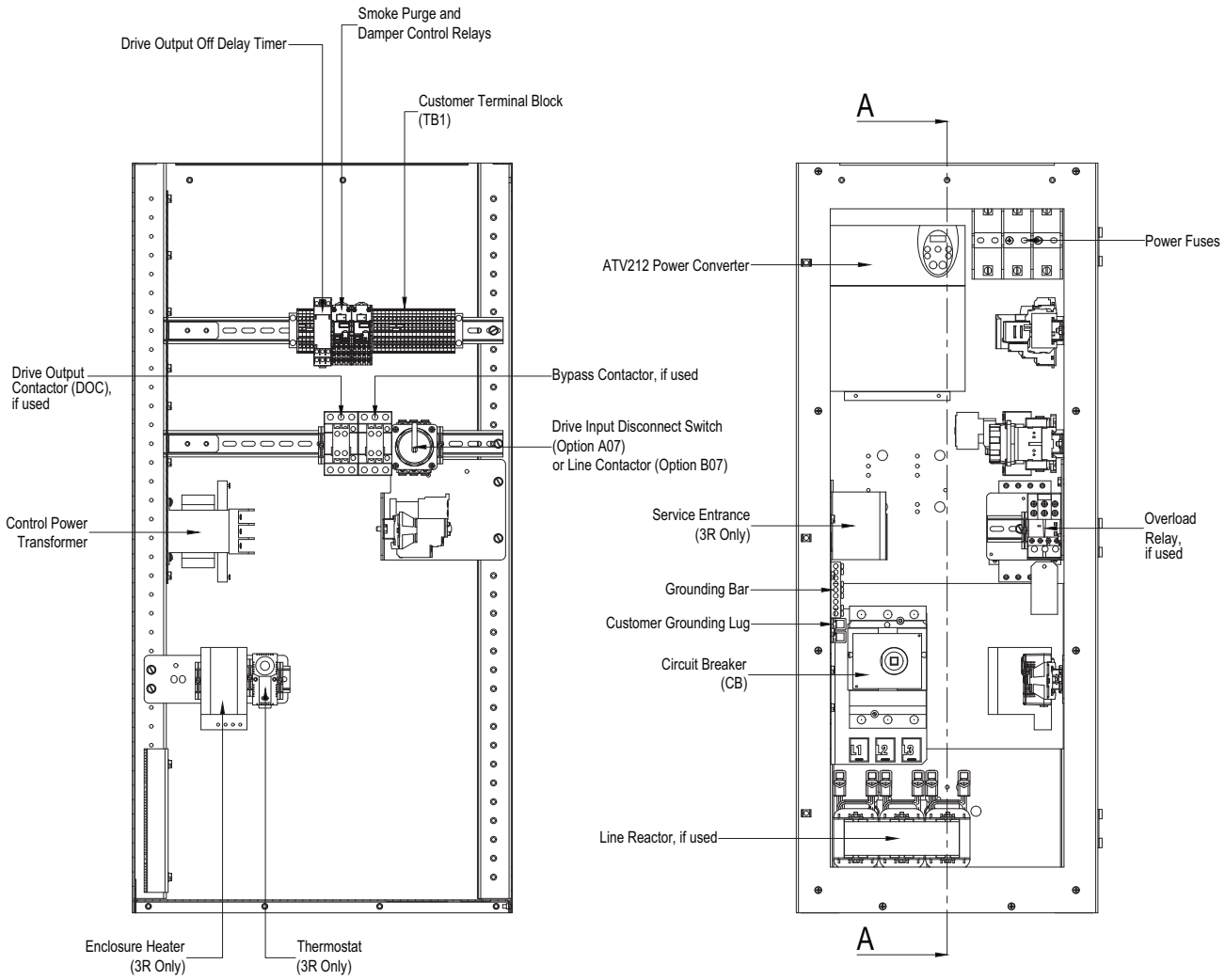
Figure 36 – Type 12K and 3R Typical Component Identification and Terminal Strip Location (7.5–10 hp @ 208/230 Vac and 10–15 hp @ 460 Vac)



Section A-A
(Components Removed for Clarity)

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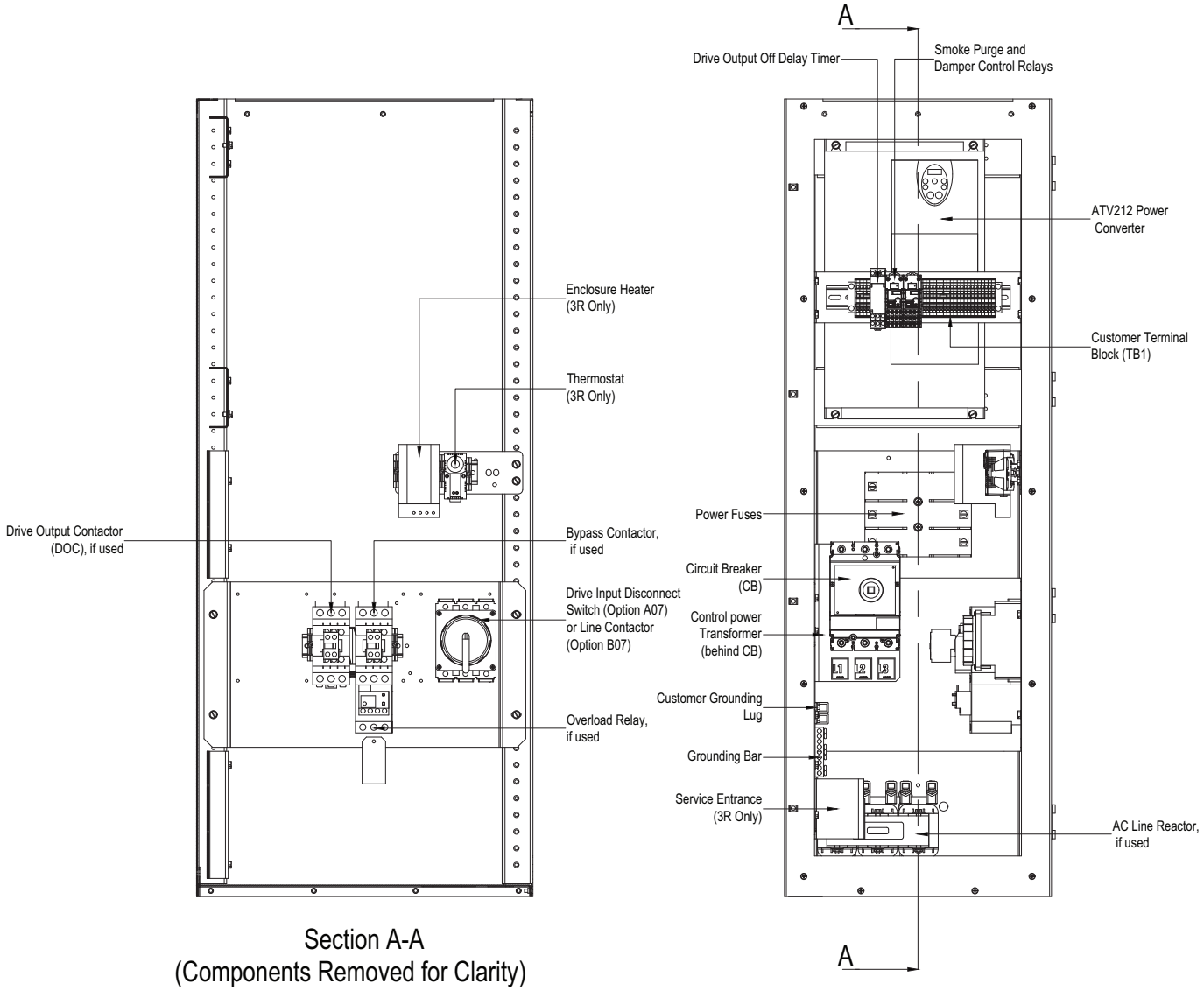
Figure 37 – Type 12K and 3R Typical Component Identification and Terminal Strip Location (15–30 hp @ 208/230 Vac and 20–40 hp @ 460 Vac)



Section A-A
(Components Removed for Clarity)

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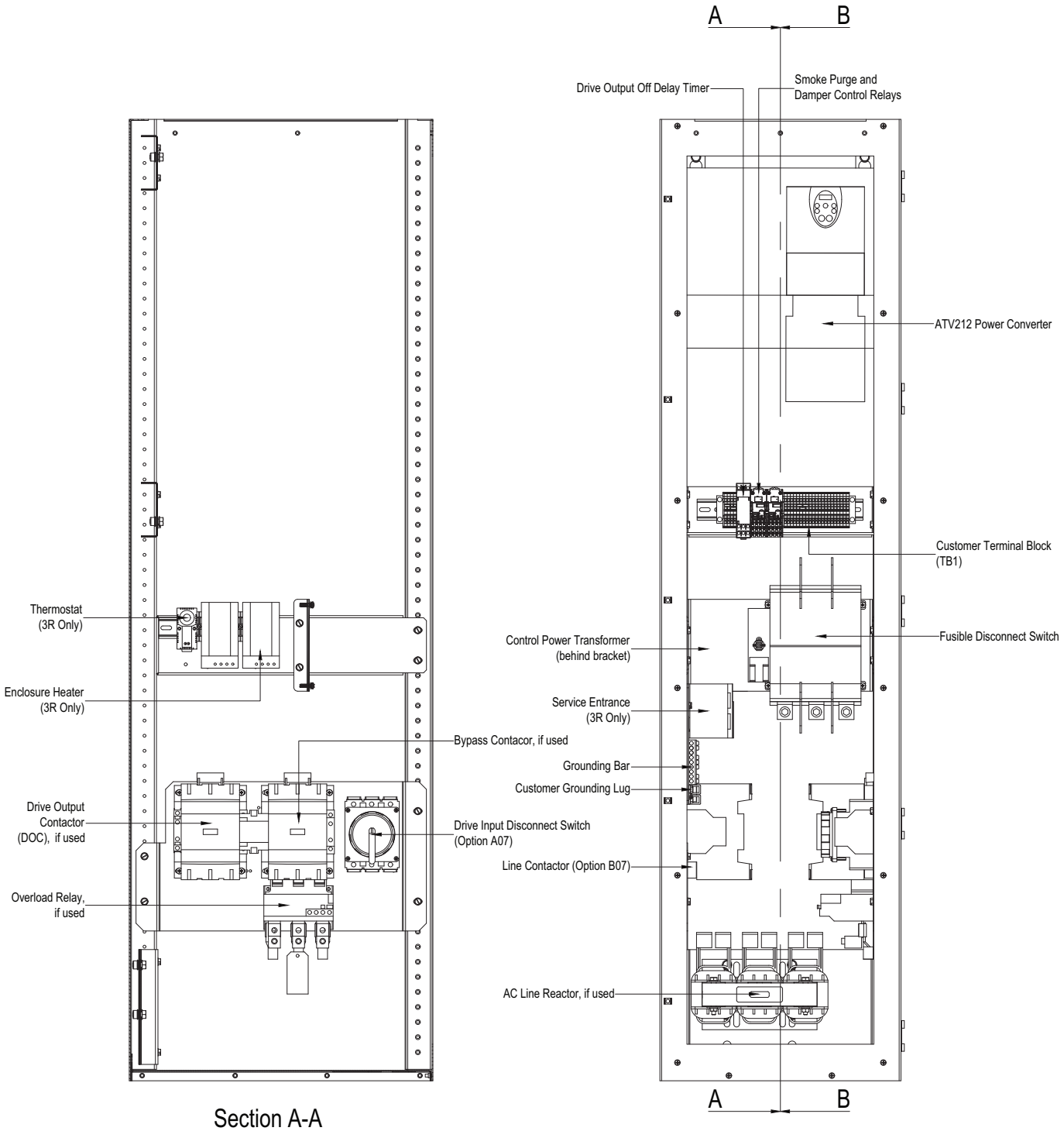
Figure 38 – Type 12K and 3R Typical Component Identification and Terminal Strip Location, (40 hp @ 208/230 Vac and 50–100 hp @ 460 Vac)



Section A-A
(Components Removed for Clarity)

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Power Wiring

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E®, CSA Z462, NOM-029-STPS, and other applicable regulations defining safe electrical work practices.
- Some terminals have voltage on them when the disconnect is open.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Replace covers before turning on power to equipment.
- Refer to “Before You Begin” starting on page 8 for important safety messages and precautions.

Failure to follow these instructions will result in death or serious injury.

⚠ CAUTION

IMPROPER WIRING

- Do not connect input power leads to the enclosed drive output terminals (T1, T2, T3 or U, V, W). This damages the enclosed drive and voids the warranty.
- Check the power connections before energizing the enclosed drive.

Failure to follow these instructions can result in injury or equipment damage.

⚠ CAUTION

HEAT AND FIRE DAMAGE

Follow the torque requirements specified on the S-Flex enclosed drive nameplate.

Failure to follow these instructions can result in injury or equipment damage.

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Table 9 – Power Terminal Characteristics

Terminal	Function	Characteristics[1]
GND	Ground (to grounding lug on panel)	—
L1, L2, L3	Three-phase power supply (to top or bottom of circuit breaker)[2]	208 Vac ±10% (SFD212•2* units) 230 Vac ±10% (SFD212•3* units) 460 Vac ±10% (SFD212•4* units)
T1/U, T2/V, T3/W	Output connections to motor (from overload relay or power converter terminals)	208 Vac ±10% (SFD212•2* units) 230 Vac ±10% (SFD212•3* units) 460 Vac ±10% (SFD212•4* units)

1 The "•" indicates the enclosure type: "A" = Type 12K, "G" = Type 1, and "H" = Type 3R. The "*" indicates that the catalog number can end in a "Y" (for an S-Flex enclosed drive with full voltage bypass) or a "W" (for an S-Flex enclosed drive without bypass).

2 Top on G03 (Type 1) or bottom on A03 or H03 (Type 12K or 3R).

Table 10 – Power Terminal Wire Range and Torque Requirements for FH Mag-Gard™ Circuit Breaker [1]

SFD212 Type 1 Enclosure	Circuit Breaker L1, L2, L3 (Line)		Overload Relay T1, T2, T3 (Load–Power Circuit Y)		Power Converter U, V, W (Load–Power Circuit W or Motor Grounding Point)		Distribution Block T1, T2, T3 (Load–Power Circuit W)		GND Bar		GND Lug	
hp	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)
1–3 @ 208 V 1–3 @ 230 V 1–7.5 @ 460 V	#14–4 (2.1–21.1)	30 (4.00)	#14–#8 (2.1–8.4)	15 (1.69)	#14–#10 (2.1–6)	11.5 (1.30)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
5 @ 208 V 5 @ 230 V	#14–4 (2.1–21.1)	30 (4.00)	#14–#8 (2.1–8.4)	22.1 (2.50)	#12–#10 (3.3–6)	11.5 (1.30)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
10–15 @ 460 V	#14–4 (2.1–21.1)	30 (4.00)	#14–#8 (2.1–8.4)	22.1 (2.50)	#12–#6 (3.3–13.3)	22 (2.70)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
7.5–10 @ 208 V 7.5–10 @ 230 V	#14–1/0 (2.1–53.4)	80 (9.04)	#14–#8 (2.1–8.4)	22.1 (2.50)	#12–#6 (3.3–13.3)	22 (2.70)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
20 @ 460 V	#14–1/0 (2.1–53.4)	80 (9.04)	#14–#8 (2.1–8.4)	22.1 (2.50)	#8–#3 (8.4–26.7)	40.0 (4.50)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
15–25 @ 208 V 15–25 @ 230 V 25 @ 460 V	#14–1/0 (2.1–53.4)	80 (9.04)	#10–#2 (5.3–33.6)	100 (11.30)	#8–#3 (8.4–26.7)	40.0 (4.50)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
30–60 @ 460 V	#14–1/0 (2.1–53.4)	80 (9.04)	#10–#2 (5.3–33.6)	100 (11.30)	#8–1/0 (8.4–53.4)	212 (24.0)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)

1 See Figures 44 and 45 on pages 84–85 for circuit breaker identification.

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Table 11 – Power Terminal Wire Range and Torque Requirements for PowerPact™ H-Frame Circuit Breaker, 1–60 hp, and GS2 Fusible Switch, 75–100 hp[1]

SFD212 Type 1 Enclosure	Circuit Breaker L1, L2, L3 (Line)		Overload Relay T1, T2, T3 (Load–Power Circuit Y)		Power Converter U, V, W (Load–Power Circuit W or Motor Grounding Point)		Distribution Block T1, T2, T3 (Load–Power Circuit W)		GND Bar		GND Lug	
hp	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)
1–3 @ 208 V 1–3 @ 230 V 1–7.5 @ 460 V	#14–#10 (2.1–6)	50 (5.65)	#14–#8 (2.1–8.4)	15 (1.69)	#14–#10 (2.1–6)	11.5 (1.30)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
5 @ 208 V 5 @ 230 V	#14–#10 (2.1–6)	50 (5.65)	#14–#8 (2.1–8.4)	22.1 (2.50)	#12–#10 (3.3–6)	11.5 (1.30)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
7.5–10 @ 208 V 7.5–10 @ 230 V 10–15 @ 460 V	#8–1 (8.4–42.4)	120 (13.56)	#14–#8 (2.1–8.4)	22.1 (2.50)	#12–#6 (3.3–13.3)	22 (2.70)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
20 @ 460 V	#8–1 (8.4–42.4)	120 (13.56)	#14–#8 (2.1–8.4)	22.1 (2.50)	#8–#3 (8.4–26.7)	40.0 (4.50)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
15–25 @ 208 V 15–25 @ 230 V 25 @ 460 V	#8–1 (8.4–42.4)	120 (13.56)	#10–#2 (5.3–33.6)	100 (11.30)	#8–#3 (8.4–26.7)	40.0 (4.50)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
30 @ 208 V 30 @ 230 V	#8–1/0 (8.4–53.4)	120 (13.56)	#10–#1 (5.3–42.4)	100 (11.30)	#8–1/0 (8.4–53.4)	212 (24.0)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
30–60 @ 460 V	#8–1/0 (8.4–53.4)	120 (13.56)	#10–#2 (5.3–33.6)	100 (11.30)	#8–1/0 (8.4–53.4)	212 (24.0)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
40 @ 208 V	#8–3/0 (8.4–53.4)	120 (13.56)	#6–3/0 (13.3–85)	160 (18.07)	#3–300 MCM (26.7–150)	212 (24.0)	#10–350 MCM (6–177)	250 (28.3)	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
40 @ 230 V	#8–3/0 (8.4–53.4)	120 (13.56)	#10–#1 (5.3–42.4)	100 (11.30)	#3–300 MCM (26.7–150)	212 (24.0)	#10–350 MCM (6–177)	250 (28.3)	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
75 @ 460 V	#6–3/0 (13.3–85)	275 (31.1)	#10–#1 (5.3–42.4)	100 (11.30)	#3–300 MCM (26.7–150)	363 (41.0)	#10–350 MCM (6–177)	250 (28.3)	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
100 @ 460 V	#6–3/0 (13.3–85)	275 (31.1)	#6–3/0 (13.3–85)	160 (18.07)	#3–300 MCM (26.7–150)	363 (41.0)	#10–350 MCM (6–177)	250 (28.3)	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)

[1] See Figures 44 and 45 on pages 84–85 for circuit breaker identification.

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Table 12 – Power Terminal Wire Range and Torque Requirements for PowerPact™ H-Frame Circuit Breaker[1] 1–60 hp and GS2 Fusible Switch 50–100 hp

SFD212 Type 12K/3R Enclosures	Circuit Breaker L1, L2, L3 (Line)		Overload Relay T1, T2, T3 (Load–Power Circuit Y)		Power Converter U, V, W (Load–Power Circuit W or Motor Grounding Point)		Distribution Block T1, T2, T3 (Load–Power Circuit W)		GND Bar		GND Lug	
hp	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)	AWG (mm^2)	lb-in (N•m)
1–3 @ 208 V 1–3 @ 230 V 1–7.5 @ 460 V	#14–#10 (2.1–6)	50 (5.65)	#14–#8 (2.1–8.4)	15 (1.69)	#14–#10 (2.1–6)	11.5 (1.30)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
5 @ 208 V 5 @ 230 V	#14–#10 (2.1–6)	50 (5.65)	#14–#8 (2.1–8.4)	22.1 (2.5)	#12–#10 (3.3–6)	11.5 (1.30)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
7.5–10 @ 208 V 7.5–10 @ 230 V 10–15 @ 460 V	#8–#1 (8.4–42.4)	120 (13.56)	#14–#8 (2.1–8.4)	22.1 (2.5)	#12–#6 (3.3–13.3)	22 (2.70)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
20 @ 460 V	#8–#1 (8.4–42.4)	120 (13.56)	#14–#8 (2.1–8.4)	22.1 (2.5)	#8–#3 (8.4–26.7)	40 (4.50)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
15–25 @ 208 V 15–25 @ 230 V 25 @ 460 V	#8–#1 (8.4–42.4)	120 (13.56)	#10–#2 (5.3–33.6)	100 (11.3)	#8–#3 (8.4–26.7)	40 (4.50)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
30 @ 208 V 30 @ 230 V	#8–1/0 (8.4–53.4)	120 (13.56)	#10–#1 (5.3–42.4)	100 (11.3)	#8–1/0 (8.4–53.4)	212 (24.0)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
30–40 @ 460 V	#8–1/0 (8.4–53.4)	120 (13.56)	#10–#2 (5.3–33.6)	100 (11.3)	#8–1/0 (8.4–53.4)	212 (24.0)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
40 @ 208 V	#8–3/0 (8.4–53.4)	120 (13.56)	#6–#3/0 (13.3–85)	160 (18.07)	#3–300 MCM (26.7–150)	212 (24.0)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
40 @ 230 V	#8–3/0 (8.4–53.4)	120 (13.56)	#10–#1 (5.3–42.4)	100 (11.3)	#3–300 MCM (26.7–150)	212 (24.0)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
50 @ 460 V	#6–3/0 (13.3–85)	275 (31.1)	#10–#2 (5.3–33.6)	100 (11.3)	#8–1/0 (8.4–53.4)	212 (24.0)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
60 @ 460 V	#6–3/0 (13.3–85)	275 (31.1)	#10–#2 (5.3–33.6)	100 (11.3)	#8–1/0 (8.4–53.4)	212 (24.0)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
75 @ 460 V	#6–3/0 (13.3–85)	275 (31.1)	#10–#1 (5.3–42.4)	100 (11.3)	#3–300 MCM (26.7–150)	363 (41.0)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)
100 @ 460 V	#6–3/0 (13.3–85)	275 (31.1)	#6–3/0 (13.3–85)	160 (18.07)	#3–300 MCM (26.7–150)	363 (41.0)	—	—	#14–4 (2.1–21.1)	35 (3.95)	#14–1/0 (2.1–53.4)	100 (11.30)

[1] See Figures 44 and 45 on pages 84–85 for circuit breaker identification.

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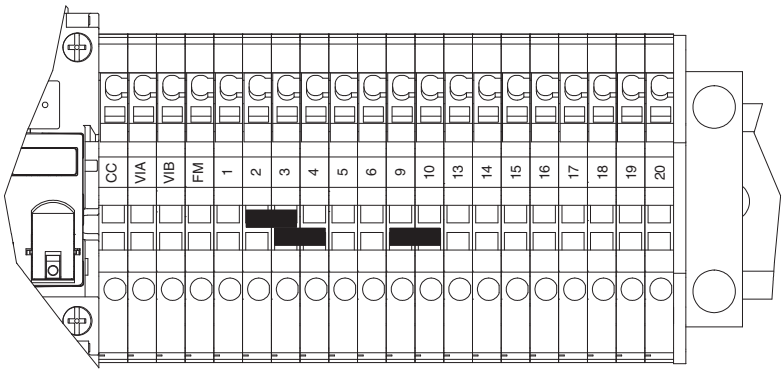
Control Wiring

Connect the control wiring to the bottom portion of the terminal block TB1. See Figure 39.

Each terminal is rated for one wire, 24–16 AWG (0.25 –1.5 mm^2). Torque the terminal screws to 5.3–7.1 lb-in (0.6–0.8 N•m). The customer terminals are designated on the wiring diagrams in this instruction bulletin. See “Wiring Diagrams” on page 96.

Figure 39 – Bypass Power Circuit Y, Series D[1]



1 To identify the series, refer to the nameplate on the enclosed drive.

Table 13 – TB1 Customer Terminal Connections, Series D

Function	Description	Customer Terminals (See Figure 39)	
0–10 Vdc Input	AFC Speed Reference	VIB	CC
4–20 mA or 0–10 Vdc Input [1, 2]	AFC Speed Reference	VIA	CC
Analog Output Signal [1]	Configurable	FM	CC
Smoke Purge Relay Disable	Add Jumper	1	2
Freeze/Firestat	Remove Jumper / Add Interlock	2	3
Damper End Switch Enable	Remove Jumper	3	4
Auto Start Contact	AFC Mode Run Input	5	6
Smoke Purge Relay Disable	Remove Jumper	9	10
System Run Auxiliary Contact [1]	Closes on Motor Running (AFC or BYP)	13	14
AFC Trip Auxiliary Contact	Closes on AFC Trip	15	16
Smoke Purge Relay Coil	120 Vac to Energize Coil	17	18
Open Damper Signal	Closes when Run Signal Provided	19	20

1 When option B06 (LonWorks) is selected, the drive run contact and analog output are not provided. Both functions can be monitored via LonWorks communications.

2 Factory set for current control. To change input VIA to voltage control, see *Altivar 212 Programming and Operation Guide*, S1A53838.

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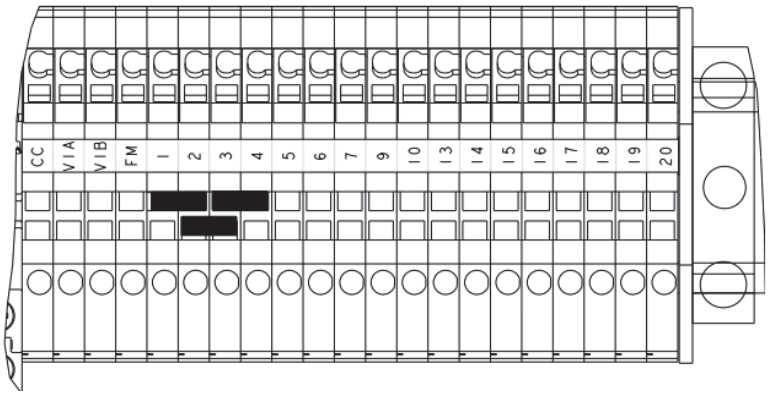
Figure 40 – Bypass Power Circuit Y, Series E[1]



1 To identify the series, refer to the nameplate on the enclosed drive.

Table 14 – Customer Terminal Connections, Series E

Functions	Descriptions	Customer Terminals (See Figure 40)	
0–10 Vdc Input	AFC Speed Reference	V1B	CC
4–20 mA or 0–10 Vdc Input [1, 2]	AFC Speed Reference	V1A	CC
Analog Output Signal [2]	Configurable	FM	CC
Freeze/Firestat	Remove Jumper / Add Interlock	1	2
End Damper Switch	Remove Jumper / Add Interlock	2	3
Smoke Purge Relay Enable	Remove Jumper to Enable	3	4
Auto Start Contact	AFC Model Run Input	5	6
Smoke Purge Relay Enable	Install Jumper to Enable	9	10
System Run Auxiliary Contact [2]	Closes on Motor Running (AFC or BYP)	13	14
AFC Trip Auxiliary Contact	Closes on AFC Trip	15	16
Smoke Purge Relay Coil	120 Vac to Energize Coil	17	18
Open Damper Signal	Closes when Run Signal is Provided	19	20

1 Factory set for current control. To change input VIA to voltage control, see *Altivar 212 Programming and Operation Guide*, S1A53838.

2 When option B06 (LonWorks) is selected, the drive run contact and analog output are not provided. Both functions can be monitored via LonWorks communications.

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Figure 41 – Non-Bypass Power Circuit W

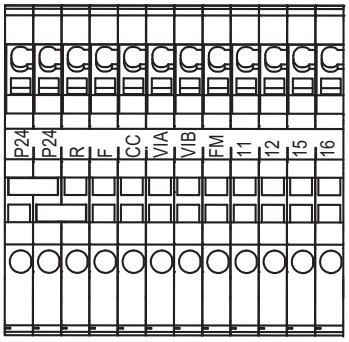

Table 15 – TB1 Customer Terminal Connections for Enclosed Drives Without Bypass

Function	Description	Customer Terminals (See Figure 41)	
Auto Start Contact	AFC Mode Run Input	P24	F
Freeze/Firestat	Remove Jumper / Add Interlock	P24	R
0–10 Vdc Input	AFC Speed Reference	VIB	CC
4–20 mA or 0–10 Vdc Input [1,2]	AFC Speed Reference	VIA	CC
Analog Output Signal [2]	Configurable	FM	CC
AFC Run Auxiliary Contact [2]	Closes with AFC Running Motor	11	12
AFC Detected Fault Auxiliary Contact	Closes on AFC Detected Fault	15	16

[1] Factory set for current control.
To change the input VIA to voltage control, see *Altivar 212 Programming and Operation Guide*, S1A53838.

[2] When option B06 (LonWorks) is selected, the drive run contact and analog output are not provided. Both functions can be monitored via LonWorks communications.

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Keypad Operation

Integrated Keypad

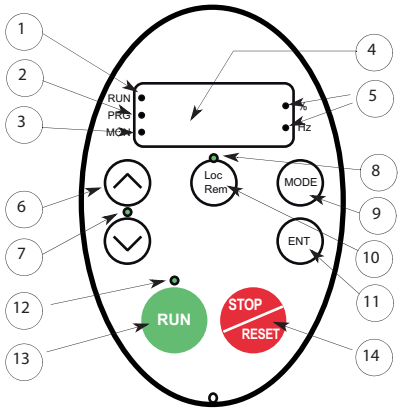

Table 16 – Integrated Keypad Features [1]

	LED/Key	Characteristics
1	Display RUN LED	Illuminates when a run command is applied to the drive. Flashes when there is a speed reference present with a Run command.
2	Display PRG LED	Illuminates when Programming mode is active. Flashes when programming parameters within menus (for example AUH, AUF, GrU, IO, or COM).
3	Display MON LED	Illuminates when Monitoring mode is active. Flashes in trip history display mode.
4	Display unit	4 digits, 7 segments
5	Display unit LED	The % LED illuminates when a displayed numeric value is a percentage. The Hz LED illuminates when a displayed numeric value is in hertz.
6	UP/DOWN keys	Depending on the mode, you can use the arrows to: • Navigate between the menus • Change a value • Change the speed reference when the UP/DOWN LED (7) is illuminated.
7	UP/DOWN LED	Illuminates when the navigation arrows are controlling the speed reference.
8	Loc/Rem LED	Illuminates when Local mode is selected.
9	MODE	Press to select the embedded keypad mode. • Run mode (default on power-up) • Programming mode • Monitoring mode Can also be used to go back to the previous menu.
10	Loc/Rem	Switches between Local and Remote modes.
11	ENT	Press to display a parameter's value or to save a changed value.
12	RUN LED	Illuminates when the Run key is enabled.

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Table 16 – Integrated Keypad Features [1] *(continued)*

	LED/Key	Characteristics
13	RUN	Pressing this key when the RUN LED is illuminated starts the drive.
14	STOP	Stop/reset key. In Local mode, pressing the STOP key causes the drive to stop based on the setting of parameter [Loc. mot stop mode] (F 12 1). In Remote mode, pressing the STOP key causes the drive to stop based on the setting of parameter [Ext. fault stop Mode] (F 603). The display will indicate a flashing "E". To reset the drive, cycle the power. If [HMI reset button] (F 135) is set to 0 (default setting), pressing the STOP key twice will reset all the resettable detected faults if the trip condition has been resolved.

1 An optional graphic keypad is also available by selecting option D07. See page 75.

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Graphic Keypad Option (D07)

The graphic keypad, with FLASH V1.1IE26 or higher, displays more detailed information than can be shown on the integrated keypad.

1 Graphic display

2 Function keys
F1: Code
F2 and F3: not assigned
F4: Loc/Rem

3 STOP/RESET key

4 RUN key

7 ESC key: Press to select the graphic keypad mode.

- — Run mode (default on power-up)
- — Programming mode
- — Monitoring mode

Can also be used to go back to the previous menu.

6 FWD/REV key: Press to reverse the direction of rotation of the motor

5 Jog dial:

- Press (ENT):
  - — To save the current value
  - — To enter the selected menu or parameter
- Turn +/-:
  - — To increase or decrease a value
  - — To go to the next or previous line
  - — To increase or decrease the reference if control via the graphic keypad is activated

NOTE: Keys **3**, **4**, **5** and **6** can be used to control the drive directly, if control via the graphic keypad is activated.

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Programming Access with Type 3R Enclosure

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E®, CSA Z462, NOM-029-STPS, and other applicable regulations defining safe electrical work practices.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

Type 3R enclosures come with a remote keypad and cable inside the enclosure. To program the process drive with this equipment:

1. Remove all power from the enclosed drive.
2. Turn the circuit breaker and handle assembly to the Off position and open the enclosure door.
3. Test for the absence of voltage.

   NOTE: Verify that the voltage tester is functioning properly before and after testing for the absence of voltage.
4. Remove the remote keypad and cable from the enclosure.
5. Connect the remote keypad and cable to the drive.
6. Route the keypad cable between the bottom enclosure flange and the bottom of the door flange. See Figure 42 on page 77.
7. Close and secure the enclosure door. Ensure that the keypad cable is not pinched by the door.
8. Close the disconnect means.
9. Program the drive with the keypad.
10. When programming is complete, remove all power then test for the absence of voltage.
11. Open the enclosure door and remove the remote keypad cable from the drive.
12. Place the remote keypad and cable inside the enclosure. Do not leave the remote keypad in the bottom of the enclosure.
13. Close and secure the enclosure door.

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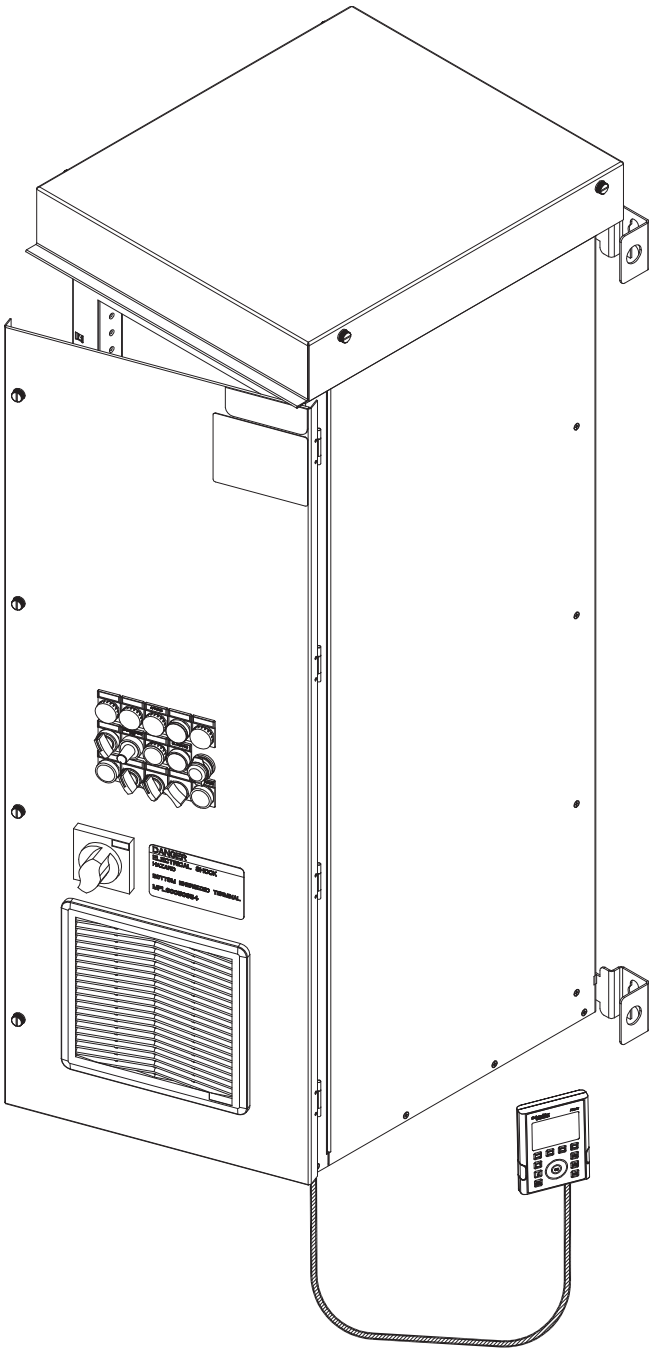
Figure 42 – Routing the Remote Keypad on Wall Mounted Enclosures



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Initial Start-up Procedure

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Read and understand this manual before installing or operating the S-Flex enclosed drive. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.
- The user is responsible for compliance with all national and local electrical code requirements with respect to grounding of all equipment.
- Many parts of this enclosed drive, including the printed circuit boards, operate at the line voltage. DO NOT TOUCH. Use only electrically insulated tools.
- Some terminals have voltage on them when the disconnect is open.
- DO NOT short across terminals PA/+ and PC/– or across the DC bus capacitors.
- Before servicing the enclosed drive:
  - — Disconnect all power including external control power that may be present.
  - — Place a “DO NOT TURN ON” label on all power disconnects.
  - — Lock all power disconnects in the open position.
  - — WAIT 15 MINUTES to allow the DC bus capacitors to discharge. Then follow the DC Bus Voltage Measurement Procedure on page 56 to verify that the DC voltage is less than 42 V. The drive LED is not an indicator of the absence of DC bus voltage.
- Install and close all covers and doors before applying power or starting and stopping the enclosed drive.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

UNQUALIFIED PERSONNEL

- This equipment must be installed and serviced only by qualified personnel.
- Qualified personnel performing diagnostics or troubleshooting requiring electrical conductors to be energized must comply with NFPA 70E®, CSA Z462, NOM-029-STPS, and other applicable regulations defining safe electrical work practices.

Failure to follow these instructions will result in death or serious injury.

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⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Before applying power, properly ground the enclosed drive panel and close and secure the enclosure door.
- Certain adjustments and test procedures require that power be applied to this enclosed drive. Exercise extreme caution as hazardous voltages exist.
- The enclosure door must be closed and secured while turning on power or starting and stopping this enclosed drive. Always follow the practices and procedures from NFPA 70E, "Standard for Electrical Safety in the Workplace®."

Failure to follow these instructions will result in death or serious injury.

The S-Flex enclosed drive has been configured for the installed options and tested at the factory. Minor adjustments to complete the field installation may be required based upon the application requirements. Using the door-mounted or remote-mounted graphic display terminal or the optional SoMove™ software, follow this start-up procedure step by step. In case of difficulty, refer to "Maintenance and Support" beginning on page 112.

Checking the Enclosure Components and Connections

With all incoming power removed, make the following equipment checks:

1. Verify that all equipment disconnects are open.
2. For units with full voltage bypass, set the AFC-Off-Bypass (or Hand-Off-Auto) selector switch to the Off position.

⚠ WARNING

UNINTENDED CONFIGURATION CHANGES

- Changing the macro configurations or installing a new option card reconfigures the drive to factory settings.
- The configuration must be reinstalled.

Failure to follow these instructions can result in death or serious injury.

3. Wait 15 minutes, then perform the "DC Bus Voltage Measurement Procedure" beginning on page 56.
4. Open the enclosure door. To open the door, turn the handle assembly to the Off position.
5. Check the wiring of the input power ground and the motor ground.
6. Ensure that the motor conductors are wired to the T1, T2, and T3 terminals of the overload relay.

   NOTE: When using the bypass circuit, ensure that the motor conductors are wired to the T1, T2, and T3 terminals of the overload relay. When using the power circuit without bypass, ensure that the motor conductors are wired to T1/U, T2/V, and T3/W of the drive or T1, T2, and T3 of the distribution block.

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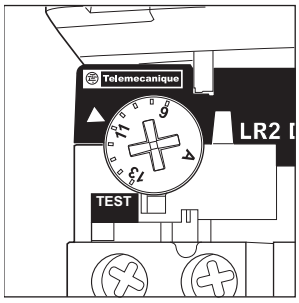
Adjusting Bypass Motor Overload Protection

7. If the enclosed drive includes a bypass option for running the motor across the line, set the overload relay dial (on the load side of the bypass contactor) to the full load ampere rating (FLA) listed on the nameplate of the connected motor. See Figure 43.

Figure 43 – Overload Relay Dial



NOTE: The LR2D1516 overload relay is shown. Your dial setting range may be different. Refer to Table 17 on page 86 for range of adjustment.

8. Using a voltmeter set at the 1000 Vac scale, verify that the incoming line voltage at the line side of the disconnecting means is within ± 10% of the input voltage rating on the enclosed drive nameplate.
9. When supplied with a drive input disconnect switch, confirm that the switch is in the On position.
10. Close and secure the enclosure door. Close the equipment disconnect means. The Power On pilot light illuminates (if used for Bypass Power Circuit Y).

⚠ CAUTION

OVERHEATED MOTOR

- This drive does not provide direct thermal protection for the motor.
- Use of a thermal sensor in the motor may be required for protection at all speeds or load conditions.
- Consult the motor manufacturer for the thermal capability of the motor when it is operated above the desired speed range.

Failure to follow these instructions can result in injury or equipment damage.

11. Adjust the full load current setting as follows:

    Programming by 7-Segment LED

    — Press the MODE key on the integrated display terminal until the PRG LED is illuminated and the display shows AUF. Press the ENT key once, then press the DOWN arrow key until tHr is displayed.

    — Press the ENT key, then use the UP and DOWN arrow keys to adjust the setting to match the full load current listed on the motor nameplate.

    — Press the ENT key to save the setting, and press the MODE key three times to return to the original menu.

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Programming by Graphic Keypad

— Press the ESC key until the PROGRAMMING MENU is displayed, turn the Jog dial until QUICK MENU (AUF) is highlighted. Press the Jog dial once, then turn the Jog dial until MOTOR THERMAL PROT. (tHr) is highlighted.

— Press the Jog dial once to adjust the setting to match the full load current on the motor nameplate.

— Press the Jog dial once to save the setting. Press the ESC key to exit to the PROGRAMMING MENU.

NOTE: The settings listed in this procedure are suitable for most applications. If your application requires different operating characteristics, refer to the *Altivar 212 Programming and Operation Guide*, S1A53838, for more information.

⚠ WARNING

HAZARDOUS MOVING PARTS

Before starting the enclosed drive, ensure that personnel are clear of the motor and its connected load and that the motor and load are ready to run.

Failure to follow these instructions can result in death or serious injury.

Checking and Correcting Motor Rotation

12. Power circuit W or Y, Series D: Set the AFC-Off-Bypass selector switch (if used) to AFC. Check the direction of motor rotation.

    — If correct, proceed to Step 17 on page 82.

    — If incorrect, turn the AFC-Off-Bypass selector switch back to Off or press STOP on the power converter control keypad.

    Power circuit Y, Series E: Set the AFC-Bypass selector switch to AFC. Set the Hand-Off-Auto (HOA) selector switch to Hand. Check the direction of motor rotation then set the HOA switch back to Off. If rotation is correct, proceed to Step 17.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Turn off all power supplying this equipment.
- Wait 15 minutes.
- Perform the “DC Bus Voltage Measurement Procedure” beginning on page 56 before proceeding.

Failure to follow these instructions will result in death or serious injury.

13. Correct the direction of motor rotation by reversing any two motor leads connected to the enclosed drive output (see Step 6, page 79).
14. Close and secure the enclosure door. Close the equipment disconnect means. The Power On pilot light illuminates.
15. Power circuit W or Y, Series D: Set the AFC-Off-Bypass selector switch (if used) to AFC. Check the direction of motor rotation. If correct, this completes the drive mode, motor rotation check. Turn the AFC-Off-Bypass selector switch back to Off or press STOP on the power converter control keypad. For Non-Bypass Power Circuit W, skip to Step 20 on page 83.

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Power circuit Y, Series E: Set the AFC-Bypass selector switch to AFC. Set the Hand-Off-Auto (HOA) selector switch to Hand. Check the direction of motor rotation then set the HOA switch back to Off. If the rotation is correct, this completes the drive mode, motor rotation check. For Non-Bypass Power Circuit W, skip to Step 20.

Checking and Correcting Motor Rotation in Bypass Mode

16. Power circuit W or Y, Series D: Momentarily set the AFC-Off-Bypass selector switch to Bypass to check the direction of motor rotation, then return it immediately to the Off position.

    — If the direction of motor rotation is correct, proceed to Step 20.

    — If the direction of motor rotation is incorrect, stop the enclosed drive. **Remove all power!**

    Power circuit Y, Series E: Set the AFC-Bypass selector switch to Bypass. Set the HOA switch to Hand. Check the direction of motor rotation then set the HOA switch back to Off. If the direction of motor rotation is correct, proceed to Step 20. If incorrect, stop the enclosed drive. **Remove all power!**

    NOTE: If the enclosed drive circuit breaker trips during this test, a higher trip setting may be required. Refer to “Adjusting Mag-Gard or PowerPact Magnetic Trip Setting” on page 84.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Turn off all power supplying this equipment.
- Wait 15 minutes.
- Perform the “DC Bus Voltage Measurement Procedure” beginning on page 56 before proceeding.

Failure to follow these instructions will result in death or serious injury.

17. Correct the direction of motor rotation by reversing any two incoming leads to the circuit breaker disconnect means marked L1, L2, or L3.
18. Power circuit Y, Series D: Momentarily set the AFC-Off-Bypass selector switch to Bypass to check the direction of motor rotation, then return it immediately to the Off position. If correct, this completes the bypass mode motor rotation check.

    Power circuit Y, Series E: Set the AFC-Bypass selector switch to Bypass. Set the HOA switch to Hand. Check the direction of motor rotation then set the HOA switch back to Off. If the direction of motor rotation is correct, this completes the bypass mode motor rotation check.

Checking the Graphic Terminal Settings

19. Adjust the High Speed (UL) Setting as follows:

    Programming by 7-Segment LED

    Check the High Speed (UL) setting (maximum motor speed). Press the MODE key until AUF is displayed. Using the UP and DOWN arrow keys, scroll to UL, then press the ENT key. Use the UP and DOWN arrow keys to adjust the maximum output frequency for the required application (factory default is 60 Hz), then press the ENT key. The enclosed drive UL setting is now complete.

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Programming by Graphic Keypad

Check the High Speed (UL) setting (maximum motor speed.) Press the ESC key until PROGRAMMING MENU is displayed and turn the dial until QUICK MENU (AUF) is highlighted, then press the Jog dial. Turn the Jog dial until UPPER LIMIT FREQ (UL) is highlighted, then press the Jog dial. Turn the Jog dial to adjust the maximum output frequency for the required application (factory default is 60 Hz), then press the Jog dial once to save the setting.

Refer to the *Altivar 212 Programming and Operation Guide*, S1A53838.

20. Adjust the Low Speed (LL) Setting as follows:

    Programming by 7-Segment LED

    Check the Low Speed (LL) setting (minimum motor speed). Continuing from Step 19 above, using the UP and DOWN arrow keys, scroll to LL, then press the ENT key. Use the UP and DOWN arrows keys to adjust the minimum output frequency for the required application (preset value is 15 Hz; factory default is 0 Hz), then press the ENT key. The enclosed drive LL setting is now complete. Press the MODE key three times to return to the original menu.

    Programming by Graphic Keypad

    Check the Low Speed (LL) setting (minimum motor speed). Continuing from Step 19 above, turn the Jog dial until LOW LIMIT FREQUENCY (LL) is highlighted, then press the Jog dial. Turn the Jog dial to adjust the minimum output frequency for the required application (preset value is 15 Hz; factory default is 0 Hz), then press the Jog dial once to save the setting. The enclosed drive LL setting is now complete. Press the ESC to return to the MAIN MENU.

    Refer to the *Altivar 212 Programming and Operation Guide*, S1A53838.

21. The application may require changing the setting of acceleration (ACC) and deceleration (dEC) times. The preset value is 60 seconds. If the power converter has been replaced or reset to the factory default, the value is model dependent. Refer to the *Altivar 212 Programming and Operation Guide*, S1A53838, for information about the settings.

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Adjusting Mag-Gard or PowerPact Magnetic Trip Setting

The adjustable magnetic trip setting is factory-set at Lo for Mag-Gard Motor Circuit Protectors. For PowerPact Motor Circuit Protectors, the Full Load Amp (FLA) Setting is factory set to the lowest position and the Instantaneous Trip Setting (Im) is factory set to the Auto 1 position. These settings may have to be adjusted for proper motor start-up. For both Mag-Gard and PowerPact Motor Circuit Protectors, refer to the magnetic trip setpoint limits outlined in the applicable national standards. For PowerPact Motor Circuit Protectors, also refer to the *PowerPact Motor Circuit Protector Settings* instruction bulletin (48940-260-01) shipped with the equipment. Some units include thermal-magnetic circuit breakers which do not require any adjustment.

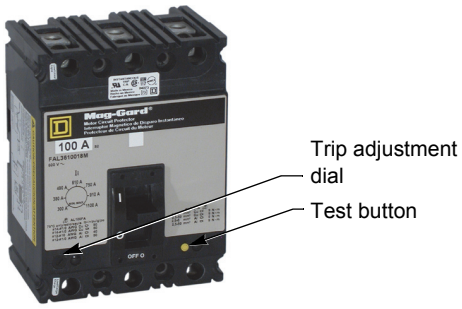
⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E®, CSA Z462, NOM-029-STPS, and other applicable regulations defining safe electrical work practices.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

Figure 44 – FH Mag-Gard Circuit Breaker Trip Adjustment



To access the Trip Adjustment dial on the FH Mag-Gard circuit breaker (if included):

1. Turn off all power supplying this equipment before working on or inside the equipment, and follow lockout/tagout procedures. Always use a properly rated voltage sensing device to confirm the power is off.
2. Place the unit handle in the Off position and open the door.

After obtaining the motor full load current from the motor nameplate, select an adjustable trip setpoint to test start the motor. Further adjustments may be required because of motor load characteristics. Refer to applicable national standards for permissible setpoints.

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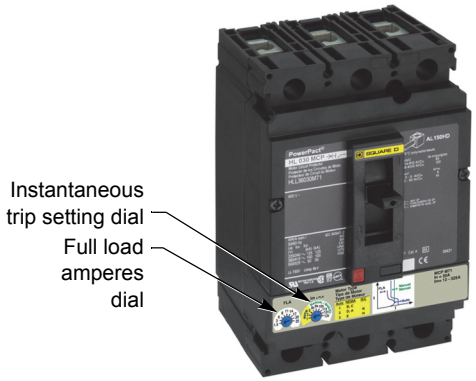
After adjusting the trip setting, reset the circuit breaker by moving the disconnect handle to the On position and then to the Off position.

Figure 45 – PowerPact Circuit Breaker Trip Adjustment



To access the Instantaneous Trip Setting (Im) and Full Load Amps (FLA) dials on the PowerPact circuit breaker (if included):

1. Turn off all power supplying this equipment before working on or inside the equipment, and follow lockout/tagout procedures. Always use a properly rated voltage sensing device to confirm the power is off.
2. Place the unit handle in the Off position and open the door.
3. To set the FLA and Im dials, refer to the PowerPact Motor Circuit Protector Settings instruction bulletin (48940-260-01) shipped with the equipment.

NOTE:

- These circuit breakers are suitable for motors with locked-rotor indicating code letters based on applicable national codes and standards. For other motors, consult your local Schneider Electric field sales representative.
- A fusible disconnect is provided with the 75 hp and 100 hp, 460 V enclosed drive instead of a circuit breaker.

Fusible Disconnect

Due to wire routing you may need to disconnect the motor power conductors to access the fuses. When replacing fuses, torque the fuse bolts to 275 lb-in (31.1 N•m).

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Overload Relay Adjustment

Always verify that the overload relay setting does not exceed the motor full load current or rated current found on the S-Flex nameplate, whichever is less.

Table 17 provides the range of adjustment provided for overload relays according to horsepower rating and voltage. Contact the factory if the overload relay range or adjustment does not meet the intended application.

Table 17 – Overload Relay Adjustment Range (Amperes)

hp	208 V	230 V	460 V
1	4–6	4–6	1.6–2.5
2	5.5–8	5.5–8	2.5–4
3	9–13	7–10	4–6
5	12–18	12–18	7–10
7.5	23–32	16–24	9–13
10	23–32	23–32	12–18
15	37–50	37–50	16–24
20	48–65	48–65	23–32
25	63–80	63–80	30–40
30	80–104	80–104	30–40
40	90–150	95–120	48–65
50	—	—	63–80
60	—	—	63–80
75	—	—	95–120
100	—	—	90–150

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Section 4— Operation

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Read and understand the precautions in “Before You Begin” starting on page 8 before performing the procedures in this section.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

UNINTENDED EQUIPMENT OPERATION

Before operating the S-Flex enclosed drives:

- Read and understand instruction bulletins S1A53832 and S1A53838 before changing any parameters from the factory defaults. See page 7 for list of instruction bulletins and information for obtaining them.
- Refer to Table 18 on page 88 for parameter setting sequence.
- If the power converter is re-initialized using the total or partial factory setting function, it must be reprogrammed to the values listed in Table 18 on page 88.
- If the power converter or the main control board of the power converter is replaced, the power converter must be reprogrammed according to the programming instructions in Table 18 on page 88.

Failure to follow these instructions will result in death or serious injury.

Programming the Power Converter

The Altivar 212 power converters are factory configured as shown in Table 18. Be sure to configure the power converter’s motor full-load current as shown on the motor nameplate. For additional programming information, see the *Altivar 212 Programming and Operation Guide*, S1A53838, supplied with drive.

⚠ WARNING

LOSS OF CONTROL

Changes to factory set parameters must be completed in the sequence of appearance in Table 18 on page 88.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

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Changes to factory settings must be completed in the sequence of appearance in Table 18.

Table 18 – Power Converter Factory Configuration (*change factory set parameters according to table sequence)*

Parameter	Name	Unit	Description	Factory Setting	Customer Setting
tYP	Parameter reset type	—	60 Hz	2	
AUI	Auto ramp adaptation	—	Disable auto ramp	0	
ACC	Acceleration time 1	seconds	Acceleration time	60	
dEC	Deceleration time 1	seconds	Deceleration time	60	
UL	High speed	Hz	High speed	60	
LL	Low speed	Hz	Low speed	15	
uLu	Motor rated voltage	V	230/208 V models	230/208	
			460 V models	460	
Pt	Motor control mode	—	Variable torque	1	
tHr	Motor rated current overload	A	Overload setting	100% of the drive's output rating	
AU4	Macro programming See *Macro Programming* in the *Altivar 212 Programming and Operation Guide*, S1A53838.	—	Run permissive	1	
F130	RC/RYC – RY/RYA relay primary function, Terminals 11 and 12 See *Relay Output Function* in the *Altivar 212 Programming and Operation Guide*, S1A53838.	—	Drive running	14	
F132	FL relay function, Terminals 15 and 16 See *Relay Output Function* in the *Altivar 212 Programming and Operation Guide*, S1A53838.	—	Inversion of relay	11	
F201	VIA speed reference level	%	4 mA minimum	20	
F605	Output phase failure detection	—	Disabled	0	
F692	Analog output bias	%	4 mA minimum	20	
F113	LI Res Selection	—	SPEED REF	38	
F207	Remote Speed Reference 2	—	HMI	3	

Additional Factory Programming Configuration for Options A06, B06, C06, and DO6

Parameter	Name	Unit	Description	Factory Setting	Customer Setting
F829	Protocol	—	Modbus RTU	1	
			Metasys N2 (C06)	2	
			Apogee P1 (D06)	3	
			BACnet (A06)	4	
			LonWorks (B06)	5	
CMOd	Remote mode start/stop control source	—	Serial Communication	2	
FMOd	Remote mode primary speed reference source	—	Serial Communication	4	

Adjustments to the Factory Programming Configuration to Allow Serial Communication Control Through the Modbus RJ-45 port

CMOd	Remote mode start/stop control source	—	Serial Communication	2	

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Table 18 – Power Converter Factory Configuration (*change factory set parameters according to table sequence)*

Parameter	Name	Unit	Description	Factory Setting	Customer Setting
FNOd	Remote mode primary speed reference source	—	Serial Communication	4	
F829	Protocol	—	Modbus	1	

Adjustments to the Factory Programming Configuration to Allow Monitoring Only Through Options A06, B06, C06, D06

Parameter	Name	Unit	Description	Factory Setting	Customer Setting
CNOd	Remote mode start/stop control source	—	Terminals	0	
FNOd	Remote mode primary speed reference source	—	VIB	2	
F 108	Always active logic function	—	Forced local	48	

Power Circuit Y with Full Voltage Bypass

For power circuit Y with full voltage bypass, the S-Flex enclosed drive operates either by the power converter or at full-speed, full-voltage bypass. You can run the motor in bypass mode in the unlikely event that the power converter becomes inoperative.

The S-Flex enclosed drives consist of:

- An IEC-rated drive output and bypass contactor with electrical interlock and Class 10 overload relay
- A 120 Vac control power transformer (CPT)
- A Square D™ brand circuit breaker disconnect or fusible disconnect with the ability to lock in the open position
- AFC-Off-Bypass selector switch in Series D and
- Hand-Off-Auto and AFC-Bypass selector switches in Series E
- A power converter

Always verify that the overload relay is set to the motor full load current.

Power Circuit W Without Bypass

For power circuit W without bypass, the S-Flex enclosed drive operates by the power converter only. This power circuit consists of a circuit breaker disconnect with means for locking in the open position, power converter, and optional equipment as specified.

Operator Controls – General Arrangement and Operation

Operator controls are located on the front of the power converter and the control rail for Bypass Power Circuit Y. Selector switches and indicators are not supplied with Non-Bypass Power Circuit W.

A selector switch allows selection of power converter operation of the motor (AFC position) or line power operation of the motor (Bypass position).

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⚠ DANGER

UNINTENDED EQUIPMENT OPERATION

Before turning on the drive or upon exiting the configuration menus, ensure that the inputs assigned to the Run command are in a state that will not cause the drive to run. Otherwise, the motor can start immediately.

Failure to follow these instructions will result in death or serious injury.

AFC Operation

AFC operation allows control of the motor with the power converter. To set the S-Flex enclosed drive to AFC operation, close the enclosed drive disconnect switch located on the front of the enclosed drive. If the enclosed drive is equipped with bypass (power circuit Y), place the selector switch in the AFC position.

The power converter can be operated locally or remotely depending on the Loc/Rem key setting (integrated keypad) or F4 key setting (graphic keypad). When using the integrated keypad, if the green LED above the Loc/Rem key is illuminated, the power converter is operating in local mode. When the green LED is not illuminated, the power converter is operating in remote mode. When using the graphic keypad, LOCAL or REMOTE is displayed above the F4 key.

Control through serial communications is the default factory setting when a communication option is selected. The power converter responds to the run command and speed reference signals over the serial communications network. See Table 18 on page 88 for information about control through Modbus serial communications.

The RJ-45 Modbus port is occupied when the graphic keypad (D07) is selected.

Non-Bypass Units (Power Circuit W)

Local control is achieved by placing the drive in local mode. The keypad Run and Stop keys can be used to start and stop the drive. Speed can be adjusted by pressing the UP and DOWN arrows on the integrated keypad, or by turning the Jog dial on the graphic keypad. The speed displays as output frequency in hertz.

In remote mode, a run command and speed reference signals can be sent to the power converter using either the logic input terminals or a serial communication network. See Table 15 and Figure 41 on page 72 for terminal designations for logic input terminals.

Bypass Units (Power Circuit Y, Series D)

Control through the logic input terminals with the drive in remote mode is the default factory setting when no communication options are selected.

With the AFC-OFF-Bypass switch in the AFC position, start/stop functionality is available through the user-supplied auto start contact. Adjustable speed reference signals are sent to the power converter through the analog input terminals. See Table 13 and Figure 39 on page 70 for terminal designations for the logic input and speed reference terminals.

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Bypass Units (Power Circuit Y, Series E)

Control through the logic input terminals with the drive in remote mode is the default factory setting when no communication options are selected.

Local control is achieved via selector switches on the front of the enclosed drive. A local run command is provided to the drive when the AFC-Bypass selector switch is in the AFC position and the Hand-Off-Auto selector switch is placed in the Hand position. The drive keypad is the designated speed reference when the drive is running in this mode.

With the Hand-Off-Auto selector switch in the Auto position, start/stop functionality is available through the user-supplied auto start contact. Adjustable speed reference signals are sent to the power converter through the analog input terminals. See Table 14 and Figure 40 on page 71 for terminal designations for the logic input and speed reference terminals.

Bypass Operation

Bypass operation allows control of the motor with line power. To set the S-Flex enclosed drive to bypass operation, close the enclosed drive disconnect switch located on the front of the enclosed drive and operate the selector switches to place the enclosed drive in bypass operation.

- For series D units, place the AFC-Off-Bypass switch in the Bypass position.
- For series E units, place the AFC-Bypass switch in the Bypass position and then move the Hand-Off-Auto switch to the Hand or Auto position for local or remote control operation in bypass.

This transfers motor operation to line power, full speed operation. Moving the selector switch to the Off position opens the bypass contactor and stops the motor.

UL® Type 3R Operation

To prevent condensation on the inside of the cabinet, leave the process drive energized even when the motor is not running.

The enclosed drive has a UL 869A approved insulated ground neutral lug assembly and mounting bracket with a bonded enclosure ground wire suitable for use as service entrance rated equipment. Service Entrance Rating is not available when cUL is required.

Freeze/Firestat Interlocks (If Used)

Terminals are provided to accept a user-supplied, normally-closed (N.C.) freeze/firestat interlock. Remove the factory-installed jumper from the terminals before installing the interlock. If the connection between the freeze/firestat terminals is open, the drive output contactor and the drive bypass contactor will open and cause the motor to coast. This feature can be used in conjunction with freeze sensors or in a firestat control system in accordance with NFPA (National Fire Protection Association) and local codes. See Table 13 on page 70 and Table 14 on page 71 for terminal numbers.

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Pilot Lights

Pilot lights visually indicate protective functions and circuit status. The LED ratings for the pilot lights is 120 Vac.

The functions of the two pilot lights are:

- Power On (red): illuminates when the enclosed drive disconnect is turned on. When pilot lights are not supplied, Power On is indicated by illumination the of power converter display.
- Bypass Run (green): illuminates while the enclosed drive is operating in bypass mode.

Pilot Lights are not available with Non-Bypass Power Circuit W.

Auxiliary Drive Run Contact (Power Circuit W)

Provides a normally-open (N.O.) contact that closes to indicate when the motor is running in drive mode. See Table 15 on page 72 for terminal number designations.

NOTE: This contact is not available if LonWorks (option B06) is included in the unit.

System Run Contact (Power Circuit Y)

Provides parallel normally-open (N.O.) contacts to indicate when the motor is running in drive mode or in full voltage bypass mode. See Table 13 on page 70 and Table 14 on page 71.

NOTE: If LonWorks (option B06) is included in the unit, the drive run indicating contact is not available, so the system run terminals will only indicate operation in bypass.

Auxiliary Detected Fault Contact

Provides an N.C. contact between TB1–15 and TB1–16. Upon successful converter start-up, the contact will open and remain open until the drive detects a fault or is powered down.

Damper Control

Available only on S-Flex enclosed drives with the integral full voltage bypass circuit. To enable damper control, remove the jumper between the terminals allocated for the damper switch. See Table 13 on page 70 and Table 14 on page 71.

AFC Mode Bypass Units (Power Circuit Y, Series D)

In AFC mode, when the customer supplied auto start command contact is closed, a dry relay contact closes between terminals 19 and 20 that can be used by the customer to energize a damper actuator motor to open louvers that are closed when the enclosed drive is off.

AFC Mode Bypass Units (Power Circuit Y, Series E)

In AFC mode, with the Hand-Off-Auto selector switch set to Hand, or with the switch set to Auto and with the customer supplied auto start command contact closed, a dry relay contact closes between terminals 19 and 20 that can be used by the customer to energize a damper actuator motor to open louvers that are closed when the enclosed drive is off.

AFC Mode Bypass Units (Power Circuit Y, Series D and E)

When the damper reaches an Open position, the damper end switch must close to provide feedback to the drive. The drive will then run the motor. The drive will continue to run until the start signal is removed or the damper end switch is no

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longer engaged. The fan motor will free wheel stop when the auto start signal, damper end switch or other installed interlocks are removed.

NOTE: The power for the damper motor must be supplied separately by the user.

Bypass Mode Bypass Units (Power Circuit Y, Series D)

When the S-Flex enclosed drive AFC-Off-Bypass selector switch is set to Bypass, the signal to the open the damper louvers is immediately made. When the damper end switch feedback is made, the bypass contactor will close. The motor will accelerate and run at line frequency speed until the Bypass switch is moved to the Off position, the damper end switch made signal is lost, or any other installed interlocks are removed.

Bypass Mode Bypass Units (Power Circuit Y, Series E)

When the S-Flex enclosed drive AFC-Bypass switch is set to Bypass and the Hand-Off-Auto switch is set to Hand the signal to operate the damper louvers is immediately made. With the switch set to Auto and the customer supplied auto start contact closed, the signal to operate damper louvers is immediately made. When the damper end switch feedback is made, the bypass contactor will close. The motor will accelerate and run at line frequency speed until the Hand-Off-Auto switch is moved to the Off position, the damper end switch made signal is lost, or any other installed interlocks are removed.

Smoke Purge Function (Fireman's Override)

Provides a smoke purge function which is controlled by a user-supplied, 120 Vac signal between terminals TB1–17 and TB1–18. Supplying 120 Vac to TB1–17 and TB1–18 transfers the motor operation to line power (if not operating in this mode already). This feature can be used in powered, smoke extract systems designed in accordance with NFPA and local codes. The Smoke Purge Function is not available with Non-Bypass Power Circuit W.

Series D

To disable the smoke purge function, remove the jumper between terminals TB1–9 and TB1–10 and install the jumper on terminals TB1–1 and TB1–2.

In the event that the smoke purge function is also enabled, the conditions described in "Damper Control" on page 92 are not active. The enclosed drive full voltage bypass will close immediately, accelerating to line frequency speed regardless of the damper end switch position. Any required interlocks to prohibit operation once smoke purge has been activated must be connected to terminals 9 and 10. This may include damper end switch, high static pressure switch, freeze/firestats or any other device which, when opened, disables the motor operation even during a smoke purge event. Control wiring can be used to wire these signals in series so that the interlocks are active in normal and purge modes of operation. See details on Smoke Purge Function (Fireman's Override) and Figure 46 (page 96) for information on wiring external signals to the S-Flex enclosed drive with Bypass.

Series E

The S-Flex 212 Series E enclosed drive is factory configured with the smoke purge function disabled. To enable the smoke purge function, remove the jumper between terminals TB1-3 and TB1-4 and install the jumper between terminals TB1-9 and TB1-10. See the terminal block information in Table 14 on page 71.

The control circuit for the Series E enclosed drive has terminal locations for connecting freeze/firestat (TB1-1 and TB1-2) and damper control (TB1-2 and TB1-3) interlocks in series with the smoke purge activation circuit. When used, these interlocks can prohibit smoke purge operation. Interlocks to prohibit smoke purge operation may also be connected between terminals 9 and 10. See Table 14 on page 71 for information on wiring external signals to the enclosed drive with bypass.

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Options

MOD A06—BACnet

The equipment comes pre-programmed for interface with BACnet communication protocol.

MOD A07—Drive Input Disconnect Switch

This option provides an input line power disconnect switch between the mains power disconnect and the power converter. The Drive Input Disconnect Switch will disconnect line power to the power converter. The motor can run in bypass mode in the unlikely event the power converter becomes inoperative.

MOD B06—LonWorks

The equipment comes pre-programmed for interface with LonWorks communication protocol. A LonWorks serial communication card is installed VW3A21212.

MOD B07—Line Contactor

This option provides an electrically interlocked line contactor between the mains power disconnect and the power converter. When the enclosed drive is in bypass mode, the line contactor disconnects line power from the power converter.

NOTE: Options A07 Drive Input Disconnect and B07 Line Contactor are available only when full voltage bypass option (Y05) is selected. Options A07 and B07 are mutually exclusive.

MOD C06—Metasys N2

The equipment comes pre-programed for interface with Metasys N2 communication protocol.

MOD D06—Apogee P1

The equipment comes pre-programed for interface with Apogee P1 communication protocol.

MOD D07—Remote Graphic Keypad

This option provides a full-text door mounted graphic keypad with eight language options. With the graphic keypad, it is possible to display more detailed information than can be shown on the integrated keypad.

MOD K07—50 °C Operation

Mod S14 provides a high ambient equipment rating above 40 °C (104 °F) to a maximum of 50 °C (122 °F).

MOD N06—Modbus

The drive provides factory standard Modbus communications.

MOD S07—Seismic Qualified

This option supplies a certification label indicating that the enclosure is qualified with seismic rating AC156 acceptance criteria test protocol with an importance factor of 1.5. Refer to *Seismic Qualification Mounting Criteria* on page 47.

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MOD T07—cUL Option

This option provides cUL Certification for use in Canada. Please note that with cUL Certification, the service entrance lug is removed on Type 3R units.

MOD X07—Line Reactor

This option provides an AC line reactor, mounted and wired in series with the power converter. The line reactor supplies some additional inductance to limit the impact of mains transients which may occur in electrical distribution systems.

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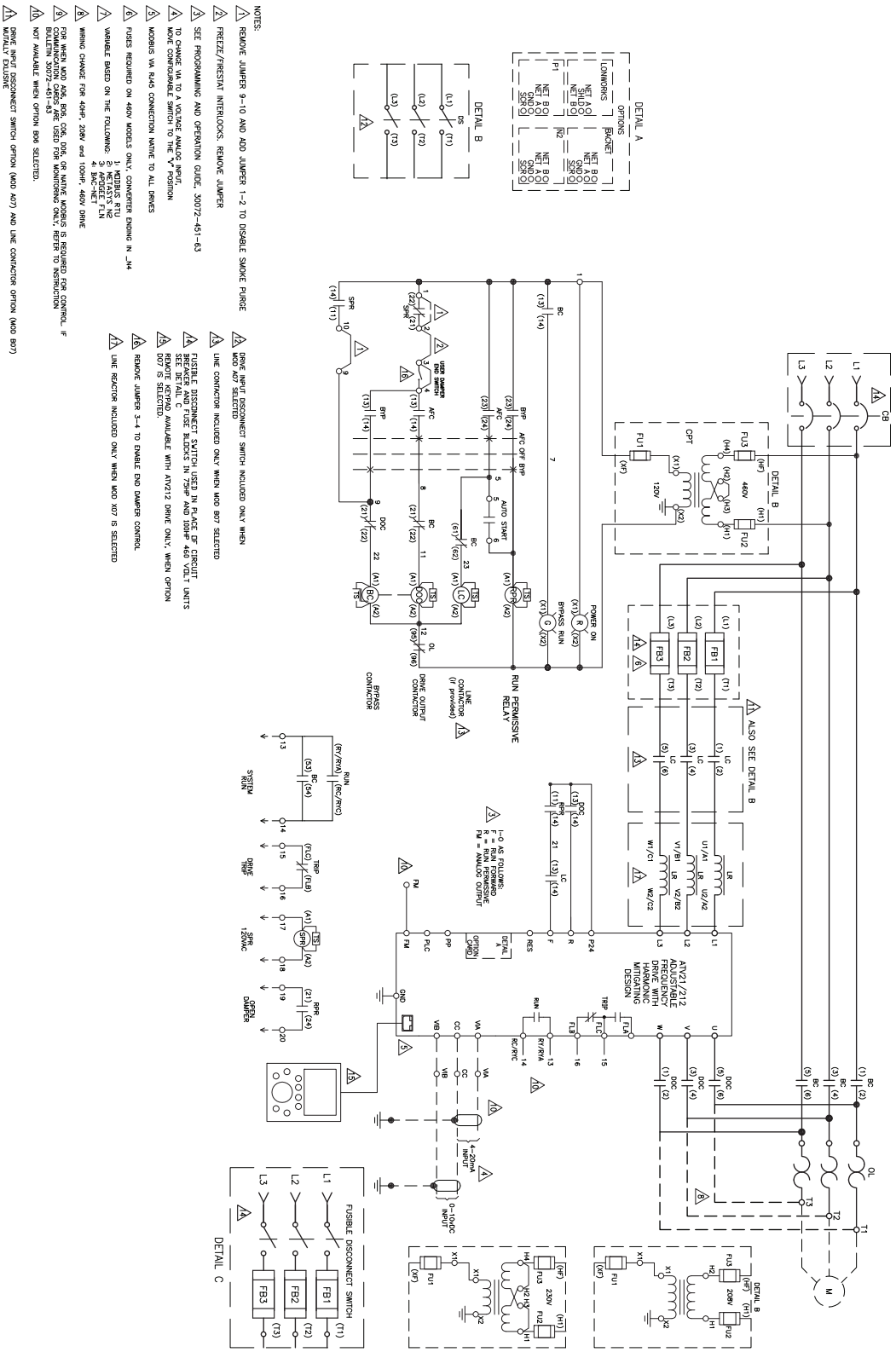
Wiring Diagrams

Figure 46 – Full Voltage Bypass Package, Enclosure Type 1, Power Circuit Y, Series D[1]



1 To identify the series, refer to the nameplate on the enclosed drive.

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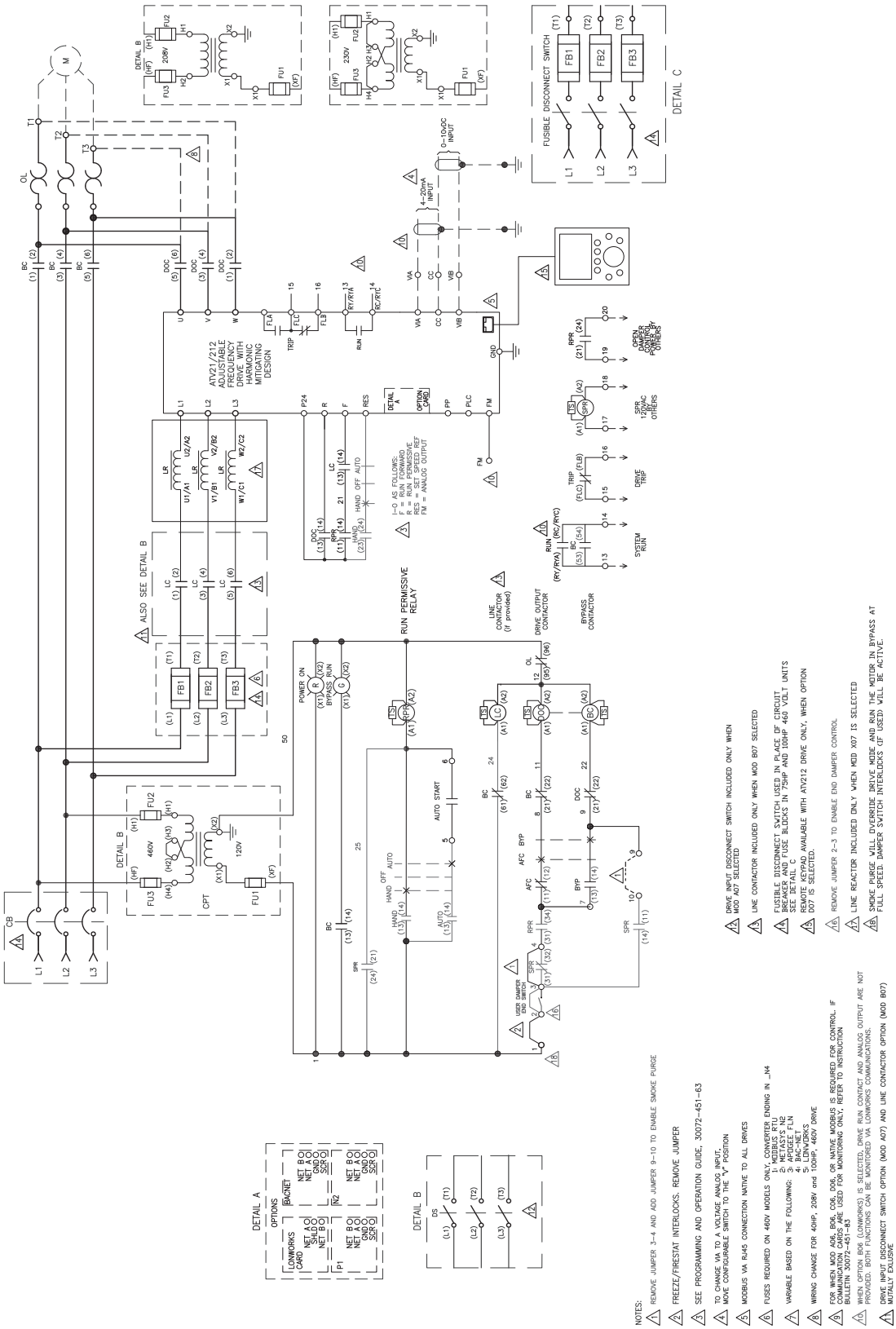
Figure 47 – Full Voltage Bypass Package, Enclosure Type 1, Power Circuit Y, Series E[1]



[1] To identify the series, refer to the nameplate on the enclosed drive.

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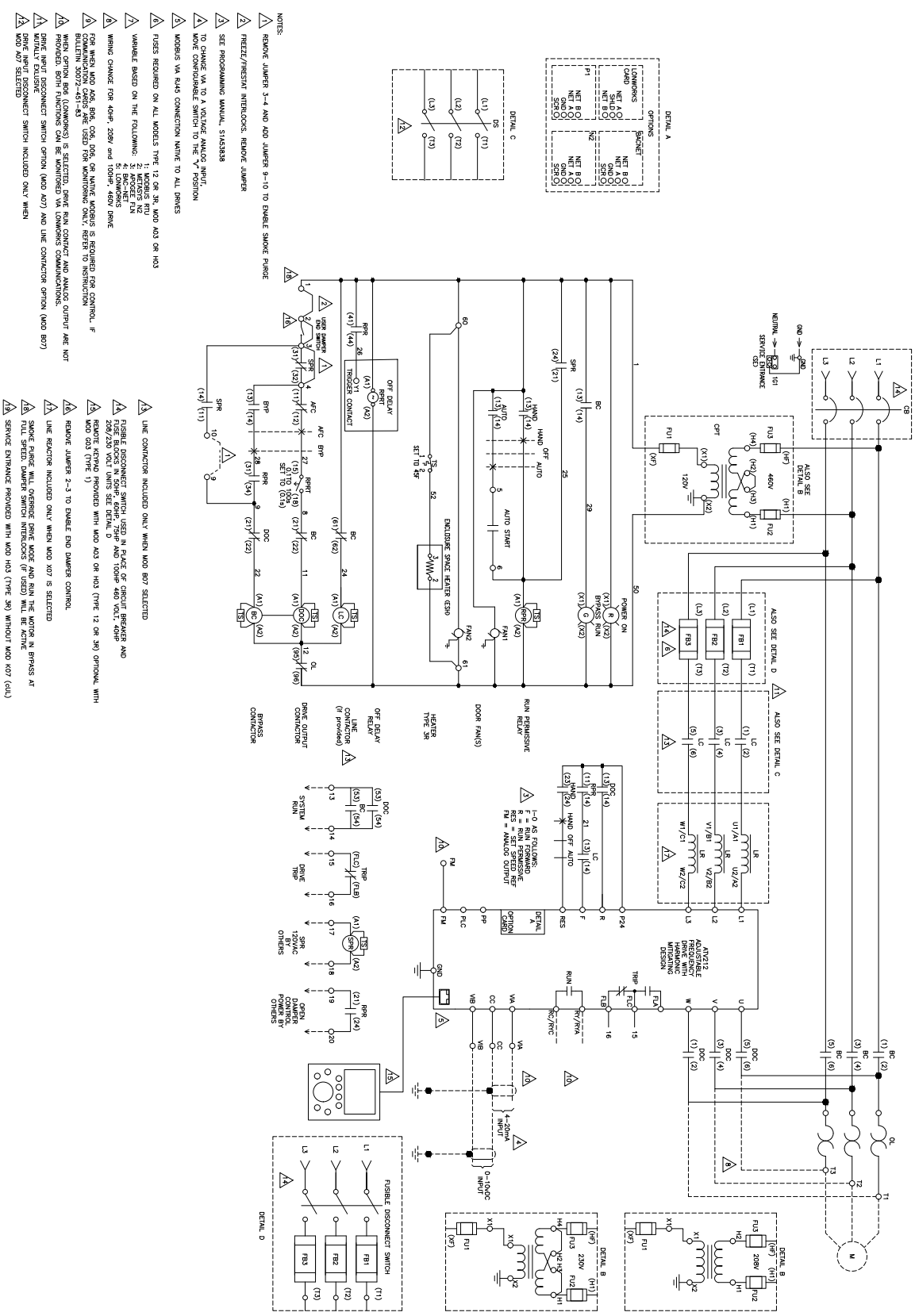
Figure 48 – Full Voltage Bypass Package, Enclosure Type 12K or 3R, Power Circuit Y, Series E[1]



[1] To identify the series, refer to the nameplate on the enclosed drive.

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Figure 49 – Non-Bypass Package, Enclosure Type 1, Power Circuit W, 208/230 V and 460 V

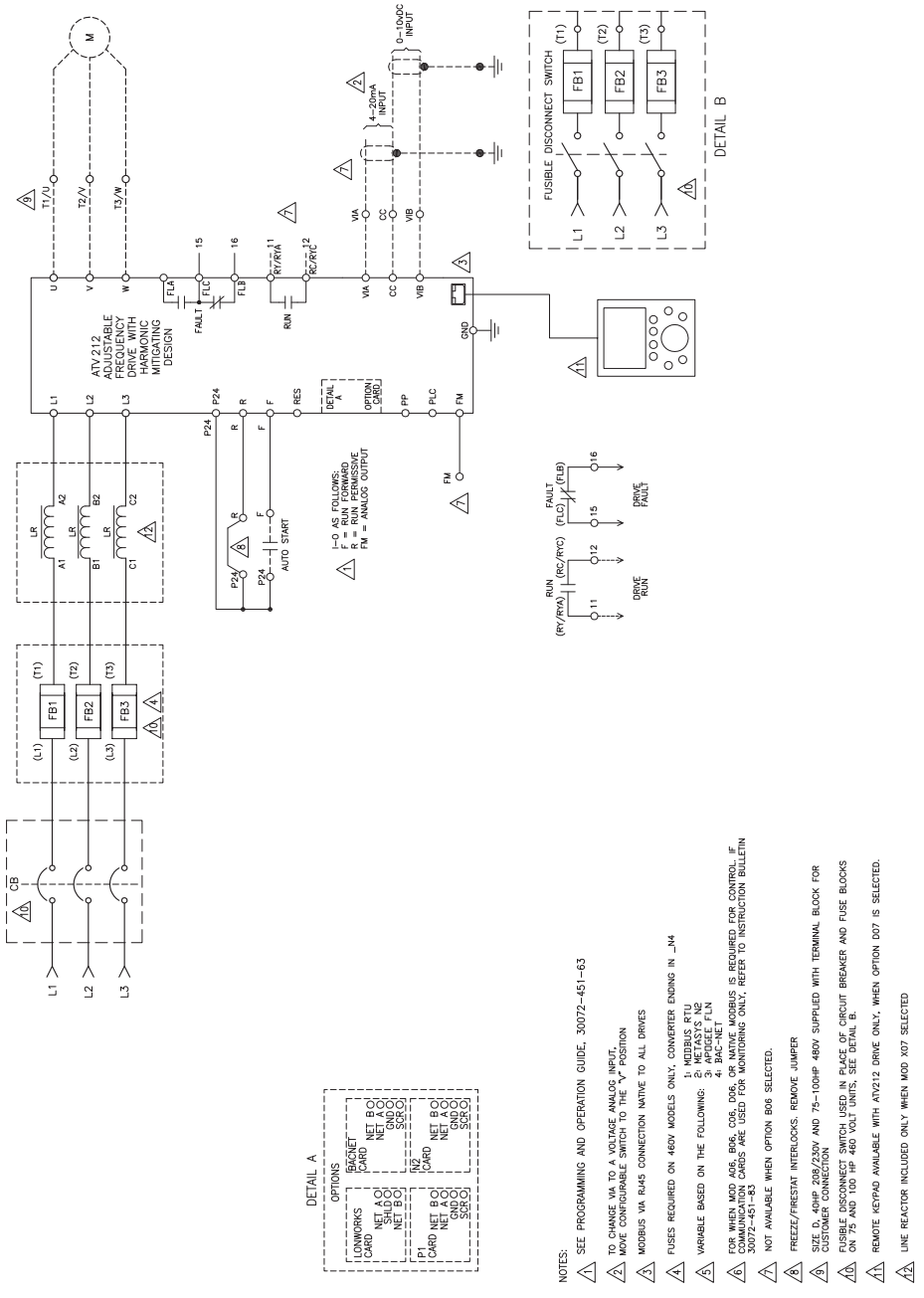

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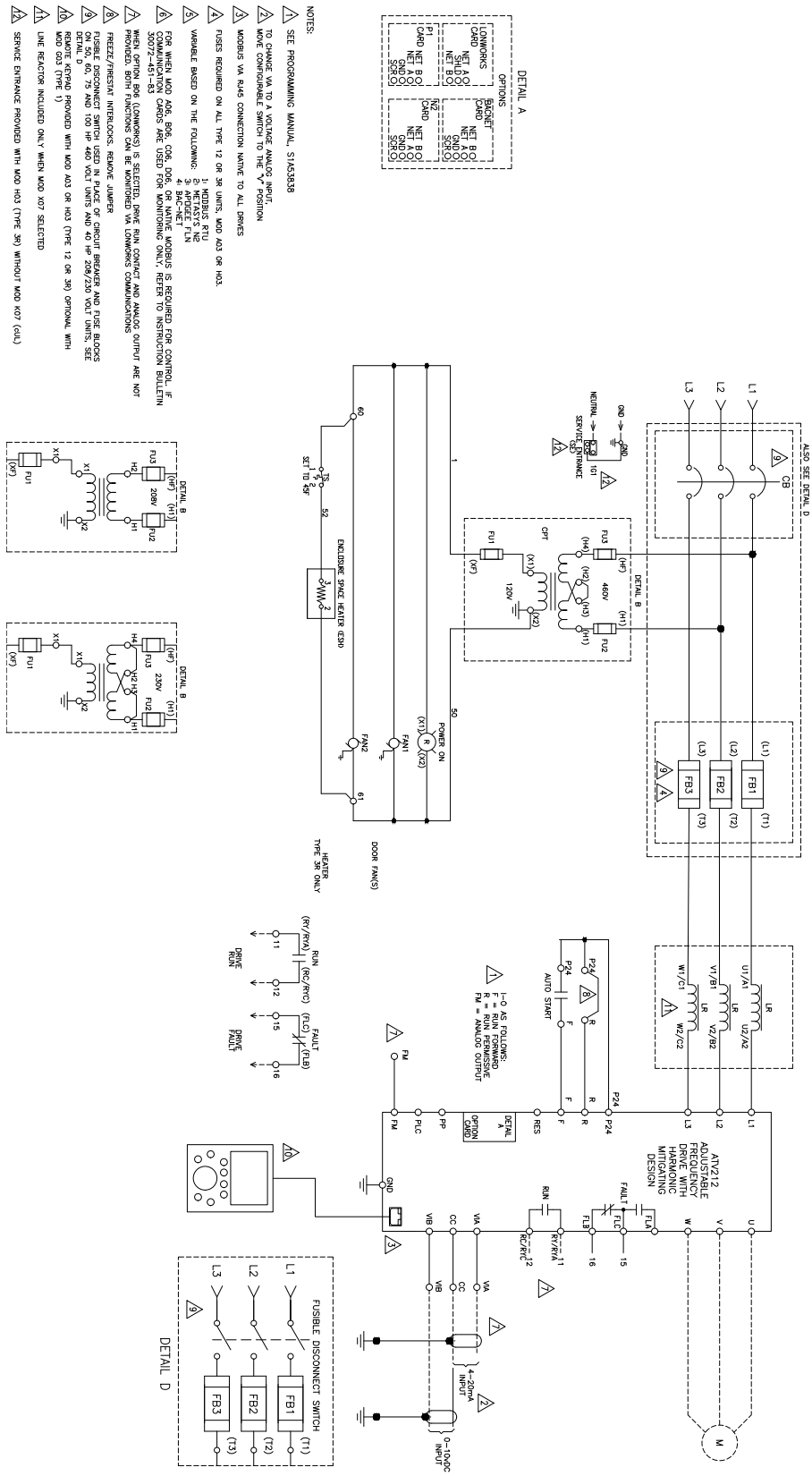
Figure 50 – Non-Bypass Package, Enclosure Type 12K or 3R, Power Circuit W, 208/230 V and 460 V



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Section 5— Proportional–Integral–Derivative Control

⚠ DANGER

HAZARD OF ELECTRICAL SHOCK, EXPLOSION, OR ARC FLASH

- Read and understand this manual before installing or operating the S-Flex enclosed drive. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.
- The user is responsible for compliance with all national and local electrical code requirements with respect to grounding of all equipment.
- Many parts of this drive, including the printed circuit boards, operate at the line voltage. DO NOT TOUCH. Use only electrically insulated tools.
- DO NOT touch unshielded components or terminal strip screw connections with voltage present.
- DO NOT short across terminals PA/+ and PC/– or across the DC bus capacitors.
- Before servicing the enclosed drive:
  - — Disconnect all power.
  - — Place a “DO NOT TURN ON” label on all power disconnects.
  - — Lock all power disconnects in the open position.
  - — Disconnect all power, including external control power that may be present, before servicing the drive. WAIT 15 MINUTES to allow the DC bus capacitors to discharge. Then follow the “DC Bus Voltage Measurement Procedure” to verify that the DC voltage is less than 42 V. The drive LED is not an indicator of the absence of DC bus voltage.
- Install and close all covers before applying power or starting and stopping the enclosed drive.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

UNINTENDED EQUIPMENT OPERATION

- Test and ensure that any changes made to the parameter settings do not present any danger to personnel and equipment during the drive operation.
- Each control scheme must be individually and thoroughly tested for proper operation before being placed into service.

Failure to follow these instructions will result in death or serious injury.

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Introduction

This section provides programming instructions for using Proportional-Integral-Derivative (PID) control on the S-Flex adjustable speed drive.

PID control provides a method for controlling a process variable using a closed loop feedback system. The error between the desired setpoint and feedback process variable provides continuous corrective action to control the process output. From an application standpoint, the drive output adjusts the speed of the motor to reduce the error to zero. Closed loop control eliminates the cycling normally associated with open loop on-off control methods. PID control aims to regulate the process consistently under changing conditions at a maximum rate with minimum waste and minimum cost of operation.

Process variables such as temperature, pressure, and level can be monitored by the drive as a current or voltage analog feedback signal. The PID regulator calculates the error between the setpoint and feedback for a closed loop, then applies an appropriate frequency reference to adjust the motor speed.

There are three control functions:

1. Proportional (P): The Proportional function determines the responsiveness of control or how quickly the output reacts to the error.
2. Integral (I): The Integral function determines the reaction based on the sum of recent errors and its absence may prevent the system from reaching its target value.
3. Derivative (D): The Derivative function determines the reaction to the rate at which the error has been changing and is very sensitive to measurement noise.

The weighted sum of P, I, and D functions is used to correct the process variable.

By tuning these three functions, the system performance including responsiveness (time to correct the error), overshoot (overage from the reference setpoint) and oscillations (cycling between the highest and lowest point until signal stabilization) can be controlled.

Figure 51 – PID Control Concept

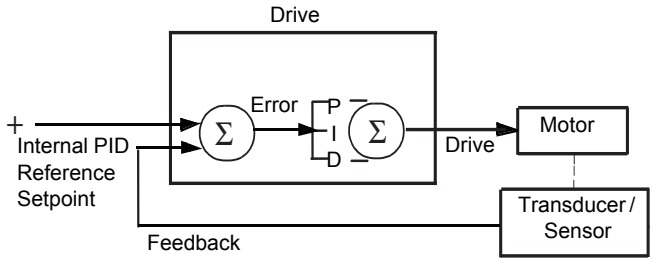

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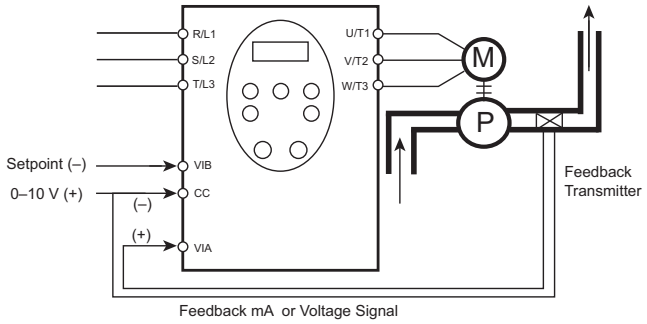
Figure 52 – PID Setup for Drive

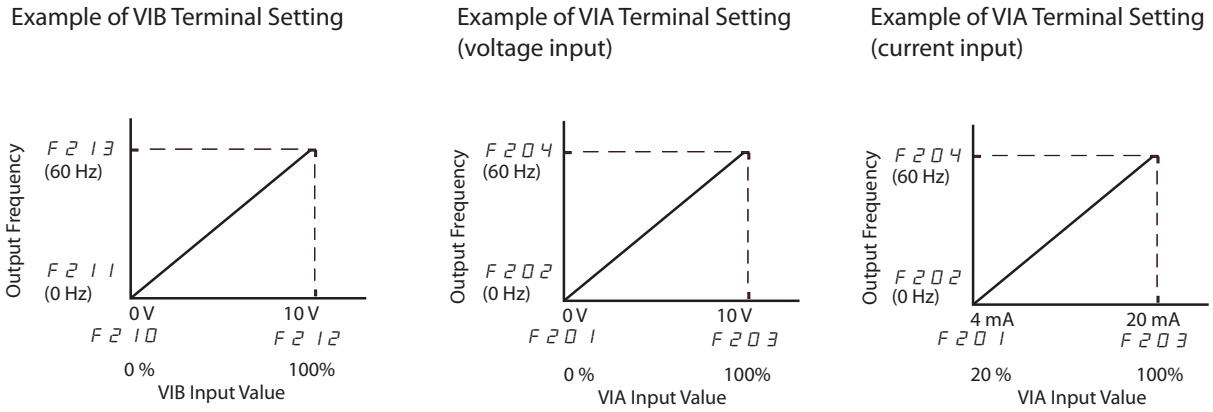


Scaling of PID Parameters

Scaling of PID parameters is required to suit a customer's application or range of the sensor input device providing the feedback signal (or both). Some examples of PID parameters and their ranges are pressure (0 to 20 psi), flow (0 to 500 gpm), and temperature (–100 °F to 300 °F).

SPEED REFERENCE LEVEL 1 and 2 parameters must be entered as a percentage of the analog input range (VIA or VIB) used as the feedback input signal. The OUTPUT FREQUENCY LEVEL 1 and 2 parameters are entered in Hz and set as a function of the speed reference (see Figure 53).

Figure 53 – Examples of Terminal Setting



SPEED REFERENCE LEVEL parameter:

For a 4–6 V signal, set Speed Reference Level 1 to 40 and Speed Reference Level 2 to 60. Figure 53 illustrates scaling for a voltage signal of 0-10 V and a current signal of 4–20 mA.

OUTPUT FREQUENCY LEVEL parameter:

For an Output Frequency of 0–60 Hz, set Output Frequency Level 1 to 0 and Output Frequency Level 2 to 60.

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PID Tuning

Tuning of the P, I, and D control functions is required to optimize the process performance based on application needs. There are several methods for tuning including manual, Ziegler-Nichols, and by using several software tools available in the market. The PID proportional gain (F362), Integral gain (F363) and derivative gain (F366) parameters can be adjusted to allow the PID regulator to be tuned for a specific application.

NOTE: Follow the instructions in *Drive Configuration via Integrated or Graphic Keypad* on page 106 to set-up the P, I, and D control functions and access the parameters for gains adjustment.

In many cases the factory settings for these parameters will be sufficient. However, if necessary, adjustments should be gradual and independent. If the system is unstable with the factory settings or the PID reference (setpoint) is not achieved, use the manual method described below:

- Set the integral gain (F363) to minimum.
- Leave the derivative gain (F366) at 0.
- Vary the load or PID reference setpoint a number of times and observe the PID regulator response.
- Set the proportional gain (F362) in order to obtain the best compromise between response time and stability.
- Once stable, if the steady state response varies from the preset value (setpoint), gradually increase the integral gain (F363), reduce the proportional gain (F362) in the event of instability (pump applications), and find a compromise between response time and precision.
- Typically, the derivative gain (F366) is not required, but may permit the reduction of overshoot and the improvement of response time. This can make it more difficult to obtain a compromise in terms of stability since this depends on 3 gains. If F366 is adjusted then the F362 and F363 may require re-adjustment.

Figure 54 on page 105 illustrates the system performance with adjustments in P, I, and D gains.

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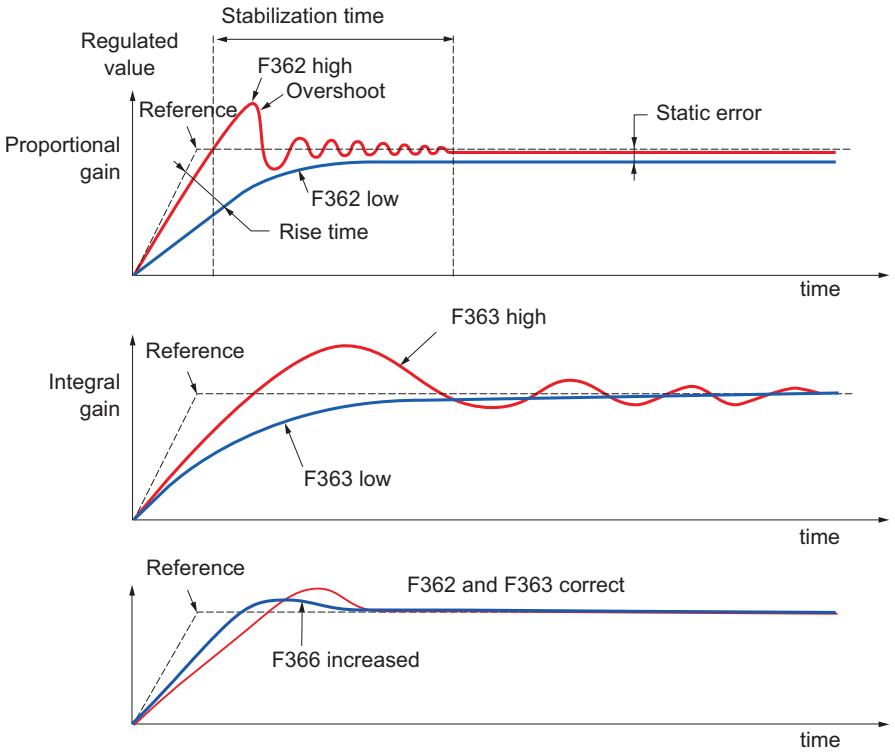
Figure 54 – System Performance With Adjustments in P, I, and D Gains



The oscillation frequency depends on the system's physical parameters and natural response.

Parameter	Rise time	Overshoot	Stabilization time	Static error
F362 ↗	↘↘	↗	=	↘
F363 ↗	↘	↗↗	↗	↘↘
F366 ↗	=	↘	↘	=

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Setting PID Control

The procedure for setting PID control for analog inputs with 0–10 Vdc or 4–20 mA signal is described in this section.

For SFD21, PID control with 4–20 mA current feedback is only possible on enclosed drives without A06, B06, C06, D06 communication options selected.

For SFD212, PID control with 4–20 mA current feedback is only possible on enclosed drives without B06 communication options selected.

Ensure that the factory settings for the enclosed drive and motor parameters are set. For more information, refer to the *Altivar 212 Programming and Operation Guide,* S1A53838.

Drive Configuration via Integrated or Graphic Keypad

With power applied to the enclosed drive and before applying a run command to the enclosed drive, use the keypad to do the following:

Programming by Integrated Keypad:

1. Press the MODE key until AUF displays; then press ENT.
2. Scroll using the UP and DOWN arrow keys until FMOd displays; then press ENT.
3. Use the UP and DOWN arrow keys to adjust the desired control source.
Procedure is continued on page 107.

Programming by Graphic Keypad:

1. Press the ESC key to display the PROGRAMMING MENU and turn the Jog dial until FREQUENCY MODE SEL. (FMOd) is highlighted; then press the Jog dial.
2. Turn the Jog dial to adjust the desired control source, then press the Jog dial when the desired control source is highlighted.
Procedure is continued on page 107.

Table 19 – Parameters

Parameter	Name	Setting
FMOd	Remote mode primary speed reference source (VIA)	1
	Remote mode primary speed reference source (VIB)	2
	Panel input setting Internal preset speed setting	3
	Remote mode primary speed reference source (Serial Comm.)	4

NOTE: VIA accepts a 0–10 Vdc voltage signal or a 4–20 mA current signal, VIB accepts a 0–10 Vdc voltage input signal. Refer to the *Altivar 212 Installation Guide,* S1A53832*,* for instructions on accessing SW3.

When operating with internal setpoint, the adjusted range is taken as a percentage value reference and not an actual speed value and may only be set between the lower speed limit (LL) and upper speed limit (UL). For example, if the intended reference output frequency is 30 Hz and UL is set for 60 Hz, the drive requires a reference signal corresponding to 50%. If LL is set to 30 Hz, the setpoint cannot be set below 50% using this method. Additional signal manipulation may be required to convert the fundamental output frequency to rotational speed, pressure, or flow.

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Programming by Integrated Keypad:
Continued from Step 3 on page 106.

4. Press the ENT key to save the selection and to exit the FMOd parameter.
5. Use the UP and DOWN arrow keys until F--- (extended parameters) displays; then press the ENT key.
6. Use the UP and DOWN arrows to select the appropriate parameter and press ENT to modify the parameter.

Programming by Graphic Keypad:
Continued from Step 2 on page 106.

3. Turn the Jog dial until EXTENDED MENU (F---) is displayed; then press the Jog dial.
4. Turn the Jog dial to select the appropriate parameter and press the Jog dial to confirm the parameter setting.

NOTE: Press the ENT key after modifying each parameter value to save and exit the parameter value selection menu and return to the F--- menu.

Control Loop Configuration

To enable PID control, configure the analog feedback signal to VIA or VIB as required based on the type of transducer feedback signal used.

If VIB is used as the speed reference, then enable VIA to be used as the feedback signal. Use the UP and DOWN arrow keys to adjust the following parameter using the rules in Table 20.

Table 20 – Parameters

Parameter	Name	Setting	Adjustment Range	Description
F360	PID Control Enable VIA (0–10 Vdc or 4–20 mA dc)	1	—	—
	PID Control Enable VIB (0–10 Vdc)	2	—	—
F362	PID Proportional Gain	—	0.01 to 100.0	Parameter F362 adjusts the proportional gain applied during PID control. The speed change applied to the motor is a correctional value proportional to the product of this parameter's setting and the process error.
F363	PID Integral Gain	—	0.01 to 100.0	Parameter F363 adjusts the integral gain applied during PID control. Any residual process errors that remain after correction by the proportional gain are cleared to zero over time by the integral gain function.
F366	PID Derivative Gain	—	0.00 to 2.55	Parameter F366 adjusts the derivative gain applied during PID control. This gain adjusts the response time of the drive to rapid changes in the process.

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Control Loop Configuration

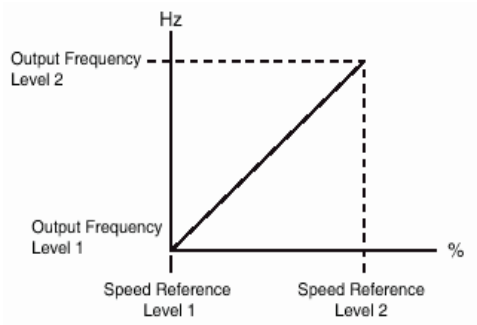
If FMOd (FREQUENCY MODE SEL) is set to 2, adjust parameters F201–F204 (for analog input control from VIA) or F210–F213 (for analog input control from VIB) according to the ranges in Table 21 to define the performance characteristics of the drive.

Table 21 – Analog Input Control Parameters

Parameter	Name	Adjustment Range
F201	VIA reference point 1	0 to 100 (%)
F202	VIA frequency point 1	0 to 200 (Hz)
F203	VIA reference point 2	0 to 100 (%)
F204	VIA frequency point 2	0 to 200 (Hz)
F210	VIB reference point 1	0 to 100 (%)
F211	VIB frequency point 1	0 to 200 (Hz)
F212	VIB reference point 2	0 to 100 (%)
F213	VIB frequency point 2	0 to 200 (Hz)

Do not set the same frequency values for both VIA frequency points 1 (F202) and 2 (F204) or VIB frequency points 1 (F211) and 2 (F213). This will cause an Err1 error.

Figure 55 – Analog Input Speed Reference and Output Frequency



A refinement to the bias and slope of the analog input signals can be made with parameters F470–F473. Refer to the *Altivar 212 Programming and Operation Guide*, S1A53838.

Sleep/Wake Operation

Parameter	Name	Adjustment Range
F256	Sleep/Wake Operation Time	0 to 600 (s)

Setting parameter F256 enables Sleep/Wake Operation. If the drive operates continuously at low speed (LL) for a time period equal to the setting of F256 in seconds, the drive will ramp the motor to a stop.

While the motor is stopped, LStP will flash on the drive keypad until a speed reference above LL is provided. The factory setting is 0, which disables this function. By default LL is set to 15 Hz and can be modified.

Refer to the *Altivar 212 Programming and Operation Guide*, S1A53838, for more information.

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PID Control Waiting Time

Parameter	Name	Adjustment Range
F359	PID Control Waiting Time	0 to 2400 s

By setting F359, the drive will not enter PID control until the time set by F359 has elapsed. The factory setting is 0, which disables this function. Factory default acceleration time is set at 60 seconds. If default acceleration time is changed or a factory reset is performed, adjust parameter F359 to match the desired acceleration and wait times.

Refer to the *Altivar 212 Programming and Operation Guide,* S1A53838, for more information.

Attain Speed Relay

Attain Speed Relay is only compatible with analog feedback control. Refer to the *Altivar 212 Programming and Operation Guide,* S1A53838, for additional relay configurations and settings.

Table 22 – Attain Speed Relay Parameters

Parameter	Name	Setting	Adjustment Range	Description
F137	RYC–RYA Relay Secondary Function	60	—	To enable the run command signal relay (RA–RC and RYC–RYA) to include attain speed signal functionality, set parameter F137 to 60. The relay will only energize when the drive speed reference equals the VIB signal and a run command is received.
F167	Frequency command agreement detection range	—	0.0 to FH (Hz)	Parameter F167 determines the bandwidth around the VIB speed reference driving the relay output function.

Control Wiring

For analog PID control, wire terminals VIA, VIB, and CC as shown in Figure 56 (for two-wire loop powered) and in Figure 57 (for separately powered transducer).

- If the feedback is a 4–20 mA signal, set switch SW3 to the I (current) position.
- If the feedback is a 0–10 Vdc signal, set switch SW3 to the V (voltage) position.

Refer to the *Altivar 212 Installation Guide,* S1A53832, for instructions on accessing SW3.

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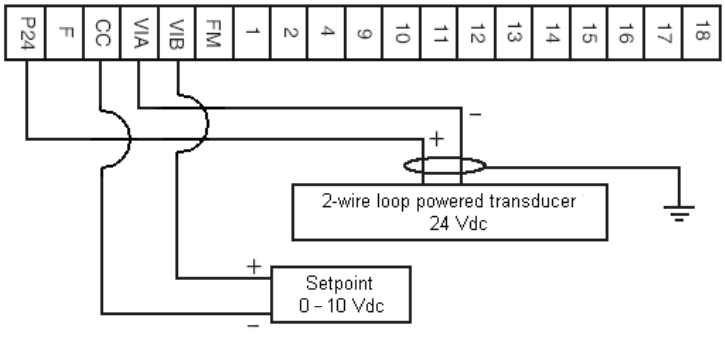
Figure 56 – Two-wire Loop Powered Transducer



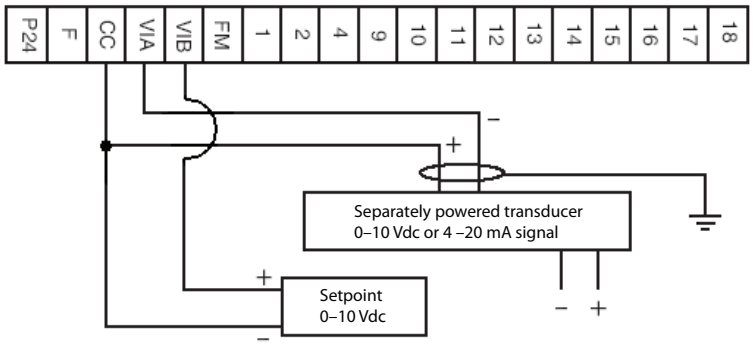
⚠ CAUTION

UNINTENDED MOTOR SPEED

Ensure adequate current for the transducer. The 24 Vdc power supply is current-limited to 200 mA. A load greater than the limit will cause the control voltage to dip and may result in erroneous readings from the transducer.

Failure to follow these instructions can result in injury or equipment damage.

Figure 57 – Separately Powered Transducer



Ground the shield only at one end to prevent large currents from flowing in the shield. The shield on the ungrounded end may be tied to ground with a capacitor (for example,10 nF, 100 V or higher) to provide a path for the higher frequency noise.

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Application Notes

To set up the drive for a potentiometer using the drive supplied 10 Vdc supply or keypad speed reference, refer to the *Altivar 212 Installation Guide*, S1A53832, for additional details on power converter terminal block characteristics. Actual terminal arrangement and termination availability may vary depending on the communications option selected.

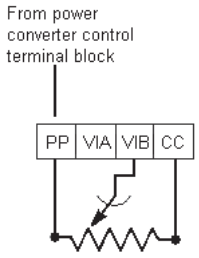
Programming the PID Internal Setpoint with the Keypad

Set the following parameter: = FNOd to 3. This allows you to program the internal setpoint with the keypad.

When a run command is issued the default display for the drive will be the is output frequency.

Press the Up or Down arrow button while watching the gauge that shows the actual value. Once the actual value reaches the point you want to maintain, press enter. The setpoint will be shown on the display in a percentage between Low Speed (LL) and High Speed (UL). For example, 30 is 50%. See “Graphic Keypad Option (D07)” on page 75.

Figure 58 – Control Terminals



One internal 10 Vdc supply is accessible through terminal PP, integral to the power converter. Refer to Figure 58. The power supply is short-circuit and overload protected and capable of supplying up to 10 mA supply current. Size the reference potentiometer accordingly within a 1 to10 k range. Connect the potentiometer as shown in Figure 58.

Set parameters CMOd and FMOd to the values shown in Table 23 to accept reference from the VIB terminal using the reference potentiometer.

Table 23 – Parameters

Parameter	Name	Setting
CMOd	Control terminal logic input	0
FMOd	Remote mode primary speed reference source (VIB)	2

To control the PID reference setpoint from the keypad, press the Loc/Rem key at any time and provide a speed reference command from the keypad display using the UP/DOWN arrows.

NOTE: Parameter F732 must be set to 0 to enable Loc/Rem.

Refer to the *Altivar 212 Programming and Operation Guide,* S1A53838, for more information.

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Section 6— Maintenance and Support

Precautions

Before replacing any parts in the S-Flex enclosed drive, read and observe the following safety messages and all other safety messages provided in this bulletin.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Read and understand this instruction bulletin before installing or operating the S-Flex enclosed drive. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.
- The user is responsible for compliance with all national and local electrical code requirements with respect to grounding of all equipment.
- Many parts of this drive, including the printed circuit boards, operate at the line voltage. DO NOT TOUCH. Use only electrically insulated tools.
- Some terminals have voltage on them when the disconnect is open.
- DO NOT short across terminals PA/+ and PC/– or across the DC bus capacitors.
- Before servicing the enclosed drive:
  - — Disconnect all power including external control power that may be present before servicing the drive.
  - — Place a “DO NOT TURN ON” label on the enclosed drive disconnect.
  - — Lock disconnect in the open position.
  - — WAIT 15 MINUTES to allow the DC bus capacitors to discharge. Then follow the “DC Bus Voltage Measurement Procedure” on page 56 to verify that the DC voltage is less than 42 V. The drive LEDs are not indicators of the absence of DC bus voltage.
- Install and close all covers and doors before applying power or starting and stopping the enclosed drive.

Failure to follow these instructions will result in death or serious injury.

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⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

For Type 1, 460 V units and all Type 12 and 3R units:

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E®, CSA Z462, NOM-029-STPS, and other applicable regulations defining safe electrical work practices.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Never operate energized switch with door open.
- Turn off switch before removing or installing fuses or making load side connections.
- Always use a properly rated voltage sensing device at all line and load fuse clips to confirm switch is off.
- Turn off power supplying switch before doing any other work on or inside switch.
- Do not use renewable link fuses in fused switches.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

For Type 1, 208 and 230 V units:

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E®, CSA Z462, NOM-029-STPS, and other applicable regulations defining safe electrical work practices.
- This equipment must be installed and serviced only by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

UNINTENDED EQUIPMENT OPERATION

Before turning on the drive or upon exiting the configuration menus, ensure that the inputs assigned to the Run command are in a state that will not cause the drive to run. Otherwise, the motor can start immediately.

Failure to follow these instructions will result in death or serious injury.

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⚠ WARNING

LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop and overtravel stop.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of anticipated transmission delays or failures of the link[1].
- Each implementation of an S-Flex enclosed drive must be individually and thoroughly tested for proper operation before being placed into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

[1] For additional information, refer to NEMA ICS 1.1 (latest edition), "Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control" and to NEMA ICS 7.1 (latest edition), "Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems."

⚠ CAUTION

INCOMPATIBLE LINE VOLTAGE

Before turning on and configuring the enclosed drive, ensure that the line voltage is compatible with the line voltage range specified on the enclosed drive nameplate. The enclosed drive can be damaged if the line voltage is not compatible.

Failure to follow these instructions can result in injury or equipment damage.

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Diagnostic Codes

A number of diagnostic and status codes are included on the power converter. See the Troubleshooting Sheet on page 124. The graphic display terminal provides a visual indication of the enclosed drive's operating and protective circuit functions, as well as indicator lights for maintenance and troubleshooting assistance.

If the enclosed drive trips while operating, the codes must be viewed before power is removed because removing power resets the detected fault code.

External Signs of Damage

The following are signs of external damage:

- Cracked, charred, or damaged covers or enclosure parts
- Damage to the graphic display terminal such as scratches, punctures, burn marks, chemical burns, or moisture in the screen
- Oil or electrolyte on the bottom of the drive which might have leaked from the capacitors inside
- Excessive surface temperatures of enclosures and conduits
- Damage to power or control conductors
- Unusual noise or odors from any of the equipment
- Abnormal temperature, humidity, or vibration

If any of these signs are found while the equipment is powered up, immediately inform operating personnel and assess the risk of leaving the enclosed drive powered up. Before removing power from the equipment, always consult with the operating personnel responsible for the machinery and process.

Preventive Maintenance

Table 24 – Recommended Maintenance Intervals

	Interval (years)																			
Inspection[1]	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Line side terminals and torque				√				√				√				√				√
Load side terminals and torque				√				√				√				√				√
Plug-in connections				√				√				√				√				√
Relay contacts						√						√						√		
Circuit boards						√						√						√		
Insulation damage		√		√		√		√		√		√		√		√		√		√
Fiber optic cables				√				√				√				√				√
Oxidation, corrosion, dust	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Power supply LEDs				√				√				√				√				√
Gasket						√						√						√		
DC-link capacitors						√						√						√		
Circuit breaker inspection				√				√				√				√				√
Spare part inspection				√				√				√				√				√
Air filter[2]	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Heat sinks (dust and debris)		√		√		√		√		√		√		√		√		√		√
Change	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Fan(s) for control electronics				√				√				√				√				√
Fan(s) for power electronics				√				√				√				√				√
Enclosure fan(s)				√				√				√				√				√

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Table 24 – Recommended Maintenance Intervals *(continued)*

	Interval (years)																			
DC-link capacitors												√								
Enclosure filters				√				√				√				√				√
Service	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Capacitor reforming				√				√				√				√				√
Thermography				√				√				√				√				√
Current symmetry				√				√				√				√				√
Check of parameter setting				√				√				√				√				√

1 All service must be done with the enclosed drive in a non-energized state.

2 Clear the fan filters once every six months.

Inspection

Periodic inspection of the equipment is recommended to maintain the functionality over the course of its lifetime.

- Inspect the heatsink fans of the drive for blockage and impeded rotation. To prevent overheating and to allow proper air flow, maintain the clearances described on page 45.
- Examine the interior and exterior of the enclosed drive for moisture, oil, or other foreign material. Remove all foreign material and clean the enclosed drive.
- Clean the interior and exterior of the enclosed drive with a vacuum, do not use compressed air; it may distribute foreign contaminants to other surfaces.
- Check the enclosure for damage that might reduce electrical clearances.
- Examine the finish of the enclosure. Touch up the paint if necessary. Replace any badly oxidized, corroded or damaged enclosure parts.

Maintenance after a Downstream Fault Has Occurred

Excessive currents during a downstream fault may result in component or conductor damage. This damage is caused by mechanical distortion, thermal damage, metal deposits, or smoke from downstream short circuit or thermal overload currents.

After a downstream fault, locate and correct the cause of the fault. Inspect all equipment and make any necessary repairs or replacements before putting the equipment back into service. Make sure all replacement parts are rated properly and are suitable for the application. If in doubt, consult your Schneider Electric field sales representative.

After any downstream fault, perform the following maintenance procedures:

1. Examine the enclosure. External evidence of enclosure damage usually indicates damage within. Extensive damage requires replacement of the enclosure parts or the equipment entirely.
2. Replace any parts that are damaged or deformed. Pay particular attention to door hinges and door closing hardware. Inspect the area around any damaged units (both inside and out) for displaced parts from the damaged unit.
3. Examine all conductors and tighten all electrical connections to their proper torque values. Replace any damaged conductors, as well as any showing signs of arcing damage. Inspect all insulators for cracks or burn marks and replace any displaying these characteristics.

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Circuit Breaker Maintenance

Some S-Flex enclosed drives are supplied with circuit breakers. Before performing any test or maintenance on the circuit breaker, locate the upstream disconnecting device and lock-out the power feeding the circuit breaker.

Press the push-to-trip button once a year to exercise the circuit breaker. Do not perform this test under load.

NOTE: The push-to-trip button will not function when the circuit breaker handle is in the Off (O) position.

Servicing the Front Fan Filters (without Rain Hood)

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E®, CSA Z462, NOM-029-STPS, and other applicable regulations defining safe electrical work practices.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

The S-Flex 212 enclosed drive includes filtered forced air ventilation that prevents excess dust or debris from entering the enclosure. The filters require periodic maintenance and replacement. Replacement or cleaning of filters is suggested once every six months at minimum, but the frequency may increase depending on a number of environmental factors. Select a maintenance cycle that is appropriate for your installation conditions.

1. Remove all power from the enclosed drive.
2. Turn the circuit breaker and handle assembly to the Off position and open the enclosure door.
3. Test for the absence of voltage.

   NOTE: Verify that the voltage tester is functioning properly before and after testing for the absence of voltage.
4. Unlock the air outlet grill with a flat head screwdriver and lift the grill to the top. See Figure 59 on page 118.
5. Remove the grill and filter mat. Discard the filter mat.
6. Press the air outlet grill and the new filter mat into the cut out until it locks with an audible noise.

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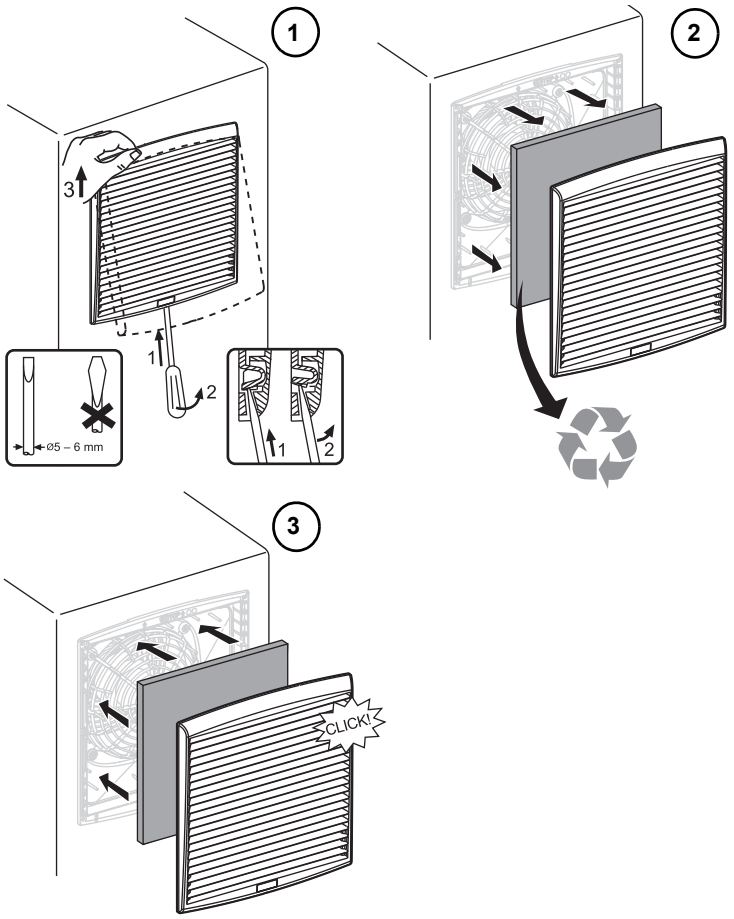
Figure 59 – Changing the Front Filters



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Servicing the Exhaust Fan Filter

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E®, CSA Z462, NOM-029-STPS, and other applicable regulations defining safe electrical work practices.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

Service of the exhaust filter is typically not required unless environmental conditions are especially dusty or the equipment has not been operated for an extended period of time. To access the exhaust fan filter:

1. Remove all power from the enclosed drive.
2. Turn the circuit breaker and handle assembly to the Off position and open the enclosure door.
3. Test for the absence of voltage.

   NOTE: Verify that the voltage tester is functioning properly before and after testing for the absence of voltage.
4. For Type 3R equipment, it is necessary to remove the rain hood. Remove the four thumb screws and lift the rain hood off the brackets. After servicing, replace the rain hood and hand tighten the thumb screws.

   For Type 12K equipment, remove the vent grill as illustrated in Figure 60.
5. Service (clean or replace) the exhaust fan filter following the instructions on page 117 for the front filters. Always replace the rain hood or top cover and thumb screws after cleaning or replacing the filter.

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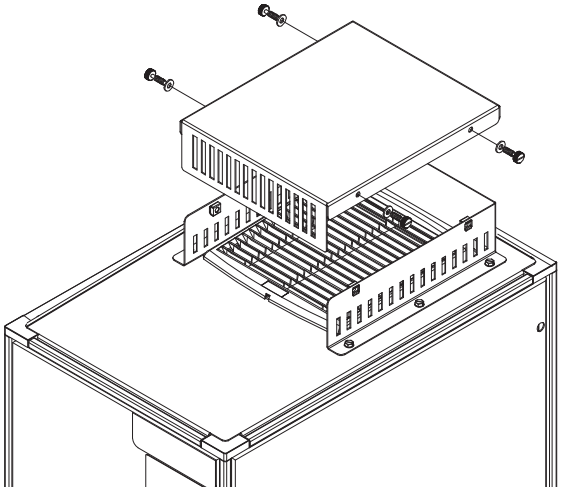
Figure 60 – Accessing the Exhaust Fan Filters on Type 12K Equipment



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Replacing the Door Fans

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E®, CSA Z462, NOM-029-STPS, and other applicable regulations defining safe electrical work practices.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

1. Remove all power from the enclosed drive.
2. Turn the circuit breaker and handle assembly to the Off position and open the enclosure door.
3. Test for the absence of voltage.

   NOTE: Verify that the voltage tester is functioning properly before and after testing for the absence of voltage.
4. Remove the grounding cable and disconnect the fan's power supply. See Figure 61 on page 122.
5. Remove two screws, lift the grill from the fan, and remove the fan from the housing. Discard the fan but save the grill and screws to reinstall with the new fan.
6. Position the new fan so that the direction arrows point to the fan housing. Affix the fan and grill to the housing using the two screws. See Figure 62 on page 122.
7. Reconnect the fan's power supply and the grounding cable.

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Figure 61 – Removing the Door Fan

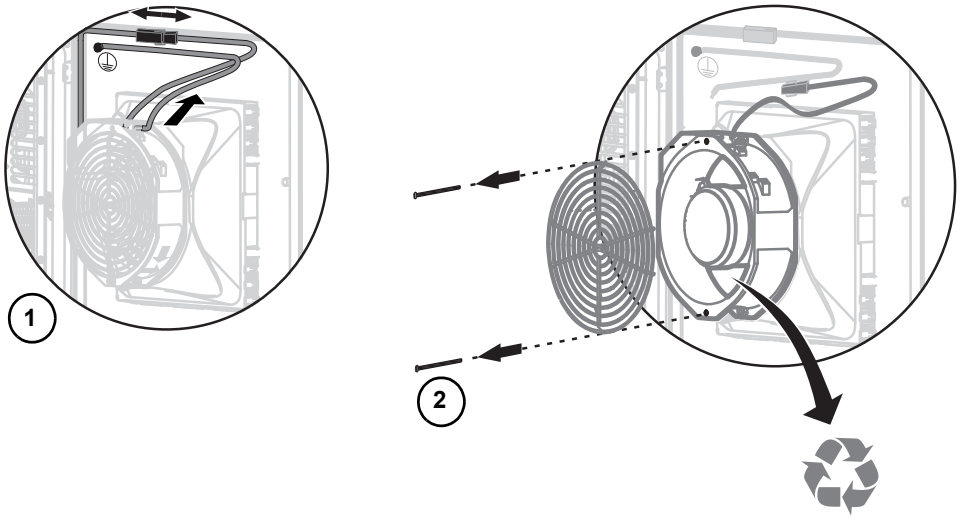
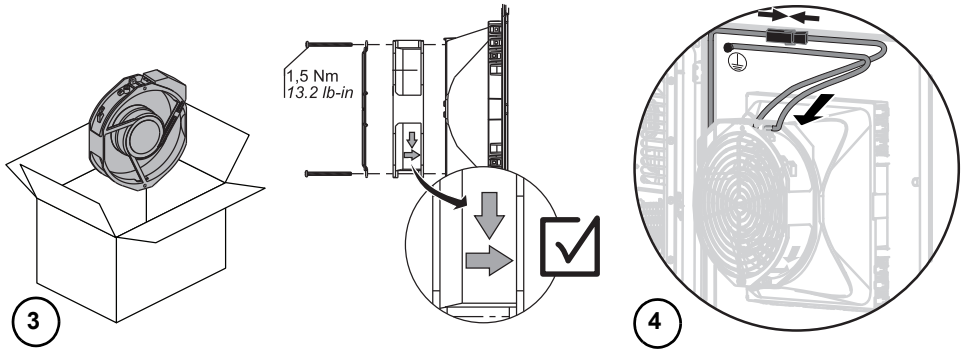


Figure 62 – Installing the New Door Fan



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Technical Support

When troubleshooting the S-Flex enclosed drive, discuss the symptoms of the reported problems with operating personnel. Ask them to describe the problem, identify when they first observed the problem, and where the problem was seen.

Observe the drive system and process. Record the drive motor and peripheral equipment nameplate data on the Troubleshooting Sheet provided on page 124. Copy this form as needed.

For product post sale technical support please contact the Drive Products Support Group between the hours of 8:00 am and 8:00 pm Eastern time.

EMERGENCY technical phone support is available for inoperable machinery 24 hours a day, 365 days a year.

Toll free	1-888-778-2733 Option # 1 (Technical Support) and then Option # 4 (AC Drives and Soft Starters)
E-mail	drive.products.support@schneider-electric.com
Fax	919-217-6508

Schneider Electric Services (On-Site)

The Schneider Electric Services division is committed to providing quality, on-site service that consistently meets customer expectations. Services responds to your requests, seven days a week, 24 hours a day.

Toll free: 1-888-778-2733

Schneider Electric Customer Training

Schneider Electric offers a variety of instructor-led, skill enhancing and technical product training programs for customers. For a complete list of drives/soft start training with dates, locations, and pricing, please call:

Phone: 866-507-0894
Fax: 859-372-1565

Product Literature

To view or download product literature, visit the Technical Library at www.Schneider-Electric.com.

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S-Flex 212 TROUBLESHOOTING SHEET

When requesting after-sales service, it is important to disclose all conditions under which the Schneider Electric equipment currently operates. This will help in diagnosing the system quickly.

Call the Product Support Group at 888–778–2733.

DATE: _____

CONTACT NAME: _____

COMPANY: _____

ADDRESS: _____

CITY: _____

STATE: _____

PHONE: _____

FAX: _____

ENCLOSED DRIVE CONFIGURATION

CATALOG NUMBER: TYPE **SFD212**:

APPLICATION/EQUIPMENT DESIGNATION:

MOTOR NAMEPLATE DATA

HORSEPOWER:_____ VOLTAGE (3 PHASE):_____FREQUENCY:_____RPM:_____FLA:_____

SERVICE FACTOR:_____ MOTOR INSULATION: ☐ NEW OR ☐ EXISTING

MOTOR CABLE TYPE:_____ LENGTH IN FEET:_____

IS MOTOR DESIGNED TO COMPLY WITH NEMA MG-1 PART 31 GUIDELINES? ☐ YES ☐ NO

POWER SOURCE AND ENVIRONMENT

VOLTAGE BETWEEN: L1 AND L2:_____ L2 AND L3:_____ L3 AND L1:_____

SERVICE TRANSFORMER RATING: _____KVA _____% Z FREQUENCY: ☐ 60 HZ OR ☐ 50 HZ

AMBIENT TEMPERATURES: MIN °C (°F)_____ MAX °C (°F)_____ HUMIDITY:_____

ALTITUDE IF GREATER THAN 3300 FEET ABOVE SEA LEVEL, SPECIFY:_____FT

DRIVE DETECTED FAULT CODES

Refer to *the Altivar 212 Programming and Operation Guide,* S1A53838 for possible causes, corrective actions, and additional detected fault codes.

☐ **E-19** BREAK IN VIA SIGNAL CABLE	☐ **Err7** CURRENT SENSOR	☐ **OC3P** GROUND CONSTANT SPEED	☐ **OP1** OVERVOLTAGE ACCELERATION
☐ **E-21** CPU	☐ **EtYP** DRIVE TYPE	☐ **OCL** SHORT CIRCUIT	☐ **OP2** OVERVOLTAGE DECELERATION
☐ **EF2** GROUND FAULT	☐ **OC1** OVERCURRENT ACCELERATION	☐ **OH** OVERTEMPERATURE	☐ **OP3** OVERVOLTAGE CONSTANT SPEED
☐ **EPH1** INPUT PHASE LOSS	☐ **OC1P** GROUND FAULT ACCELERATION	☐ **OL1** DRIVE OVERLOAD	☐ **Ot** OVERTORQUE FAULT
☐ **EPH0** OUTPUT PHASE LOSS	☐ **OC2P** GROUND FAULT	☐ **OL2** MOTOR OVERLOAD	☐ **UC** UNDERLOAD FAULT

DETAILED DESCRIPTION OF PROBLEM

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Renewable Parts

Schneider Electric provides a limited number of renewable parts for the Altivar 212 power converters and the S-Flex enclosed drives. Before replacing any parts, consult your local field sales representative. Renewable parts must be installed by qualified personnel.

Table 25 – Recommended Renewable Parts

Renewable Part		208 V Rating			230 V Rating			460 V Rating		
Power Converter[1]										
	1 hp	ATV212H075M3X			ATV212H075M3X			ATV212H075N4		
	2 hp	ATV212HU15M3X			ATV212HU15M3X			ATV212HU15N4		
	3 hp	ATV212HU22M3X			ATV212HU22M3X			ATV212HU22N4		
	5 hp	ATV212HU40M3X			ATV212HU40M3X			ATV212HU40N4		
	7.5 hp	ATV212HU55M3X			ATV212HU55M3X			ATV212HU55N4		
	10 hp	ATV212HU75M3X			ATV212HU75M3X			ATV212HU75N4		
	15 hp	ATV212HD11M3X			ATV212HD11M3X			ATV212HD11N4		
	20 hp	ATV212HD15M3X			ATV212HD15M3X			ATV212HD15N4		
	25 hp	ATV212HD18M3X			ATV212HD18M3X			ATV212HD18N4		
	30 hp	ATV212HD22M3X			ATV212HD22M3X			ATV212HD22N4		
	40 hp	ATV212HD30M3X			ATV212HD30M3X			ATV212HD30N4		
	50 hp	—			—			ATV212HD37N4		
	60 hp	—			—			ATV212HD45N4		
	75 hp	—			—			ATV212HD55N4		
	100 hp	—			—			ATV212HD75N4		

FB1, FB2, FB3 Power Fuses [2]		Type 12K, 3R			Type 12K, 3R			Type 1, 12, 3R		
		Part Number	Rating (A)	Class	Part Number	Rating (A)	Class	Part Number	Rating (A)	Class
	1 hp	25430-20800	8	CC	25430-20800	8	CC	25430-20300	3	CC
	2 hp	25430-21200	12	CC	25430-21000	10	CC	25430-20600	6	CC
	3 hp	25430-22000	20	CC	25430-21500	15	CC	25430-20700	7	CC
	5 hp	25430-22500	25	CC	25430-22500	25	CC	25430-21500	15	CC
	7.5 hp	25423-30400	40	J	25430-23000	30	CC	25430-21500	15	CC
	10 hp	25423-30500	50	J	25423-30400	40	J	25430-22000	20	CC
	15 hp	25423-30600	60	J	25423-30500	60	J	25430-23000	30	CC
	20 hp	25423-30900	90	J	25423-30900	90	J	25423-30400	40	J
	25 hp	25423-31000	100	J	25423-31000	100	J	25423-30500	50	J
	30 hp	25423-31250	125	J	25423-31000	100	J	25423-30600	60	J
	40 hp	25423-31750	175	J	25423-31500	150	J	25423-30800	80	J
	50 hp	—			—			25423-31000	100	J
	60 hp	—			—			25423-31000	100	J
	75 hp	—			—			25423-31500	150	J
	100 hp	—			—			25423-31750	175	J

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Table 25 – Recommended Renewable Parts *(continued)*

Type 1 Enclosures (MOD G03)
FU2, FU3

Control Power Transformer (Primary Fuse)	Part Number	Rating (A)	Class	Part Number	Rating (A)	Class	Part Number	Rating (A)	Class
100 VA	25430-20225 [3]	2.25	CC	FNQR2 [3]	2	CC	FNQR1 [3]	1	CC
150 VA	25430-20350 [4]	3.5	CC	25430-20321[4]	3.2	CC	25430-20150 [4]	1.5	CC

Type 1 Enclosures (MOD G03)
FU1

Control Power Transformer (Secondary Fuse)	Part Number	Rating (A)	Class	Part Number	Rating (A)	Class	Part Number	Rating (A)	Class
100 VA	25430-20140 [3]	1.4	CC	25430-20140 [3]	1.4	CC	25430-20140 [3]	1.4	CC
150 VA	FNQR2 [4]	2	CC	FNQR2 [4]	2	CC	FNQR2 [4]	2	CC

Type 12K or 3R Enclosures (MOD A03 or H03)
FU2, FU3

Control Power Transformer (Primary Fuse)	Part Number	Rating (A)	Class	Part Number	Rating (A)	Class	Part Number	Rating (A)	Class
100 VA	25430-20225	2.25	CC	FNQR2	2	CC	FNQR1	1	CC
150 VA	25430-20350	3.5	CC	25430-20321	3.2	CC	25430-20150	1.5	CC
200 VA	FNQR2	2	CC	FNQR2	2	CC	FNQR1	1	CC
250 VA	25430-20300	3	CC	25430-20300	3	CC	25430-20150	1.5	CC
500 VA	25430-20400	4	CC	25430-20400	4	CC	FNQR2	2	CC
750 VA	25430-20500	5	CC	25430-20500	5	CC	25430-20400	4	CC

Type 12K or 3R Enclosures (MOD A03 or H03)
FU1

Control Power Transformer (Secondary Fuse)	Part Number	Rating (A)	Class	Part Number	Rating (A)	Class	Part Number	Rating (A)	Class
100 VA	25430-20140	1.4	CC	25430-20140	1.4	CC	25430-20140	1.4	CC
150 VA	FNQR2	2	CC	FNQR2	2	CC	FNQR2	2	CC
200 VA	FNQR2	2	CC	FNQR2	2	CC	FNQR2	2	CC
250 VA	25430-20300	3	CC	25430-20300	3	CC	25430-20300	3	CC
500 VA	25430-20700	7	CC	25430-20700	7	CC	25430-20700	7	CC
750 VA	25430-21000	10	CC	25430-21000	10	CC	25430-21000	10	CC

1 Drives shown in the table are installed in SFD212 enclosed drives.

2 Use Class CC or J fast acting fuses. Control power transformer and fuses are supplied only with power circuit Y05 on Types 1, 12, and 3R and with power circuit W05 on Types 12 and 3R.

3 Fuses are supplied for all power ratings with MOD G03 (Type 1) and without MOD B07 (Line Contactor). Fuses are supplied for 1 to 10 hp, 208/230 V, and 1 to 20 hp, 460 V, with MOD G03 and MOD B07.

4 Fuses are supplied for 15 to 40 hp, 208/230 V, and 25 to 100 hp, 460 V with MOD G03 and MOD B07.

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Table 26 – Control Transformer Ratings (VA)

S-Flex Enclosed Drive Catalog Number[1]	Input Voltage (60 Vac)	Horsepower Rating (hp)	Type 12K W05	Type 12K Y05	Type 3R W05	Type 3R Y05
SFD212C•2	208	1	100	200	250	250
SFD212D•2		2	100	200	250	250
SFD212E•2		3	100	200	250	250
SFD212F•2		5	100	200	250	250
SFD212G•2		7.5	100	200	250	500
SFD212H•2		10	100	200	250	500
SFD212J•2		15	100	200	250	500
SFD212K•2		20	100	200	250	500
SFD212L•2		25	100	200	250	500
SFD212M•2		30	100	200	250	500
SFD212N•2		40	200	250	500	750
SFD212C•3	230	1	100	200	250	250
SFD212D•3		2	100	200	250	250
SFD212E•3		3	100	200	250	250
SFD212F•3		5	100	200	250	250
SFD212G•3		7.5	100	200	250	500
SFD212H•3		10	100	200	250	500
SFD212J•3		15	100	200	250	500
SFD212K•3		20	100	200	250	500
SFD212L•3		25	100	200	250	500
SFD212M•3		30	100	200	250	500
SFD212N•3		40	200	250	500	750
SFD212C•4	460	1	100	200	250	250
SFD212D•4		2	100	200	250	250
SFD212E•4		3	100	200	250	250
SFD212F•4		5	100	200	250	250
SFD212G•4		7.5	100	200	250	500
SFD212H•4		10	100	200	250	500
SFD212J•4		15	100	200	250	500
SFD212K•4		20	100	200	250	500
SFD212L•4		25	100	200	250	500
SFD212M•4		30	100	200	250	500
SFD212N•4		40	100	200	250	500
SFD212P•4		50	200	250	500	750
SFD212Q•4		60	200	250	500	750
SFD212R•4		75	200	250	500	750
SFD212S•4		100	200	250	500	750

1 The "•" indicates the enclosure type: "A" = Type 12K, "G" = Type 1, and "H" = Type 3R.
The "*" indicates that the catalog number can end in a "Y" (for an S-Flex enclosed drive with full voltage bypass) or a "W" (for an S-Flex enclosed drive without bypass).

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Table 27 – Type 1 S-Flex Bypass Circuit Power Component Renewable Parts (Mod Y Only), Square D Catalog Numbers

S-Flex Enclosed Drive Catalog Number	Input Voltage (60 Hz Vac)	Horsepower Rating (hp)	Main Circuit Breaker	Drive Input, Drive Output, or Bypass Contactor	Motor Overload Relay
SFD212CG2	208	1	HLL36015LV	LC1D25G7	LRD10
SFD212DG2		2	HLL36020LV	LC1D25G7	LRD12
SFD212EG2		3	HLL36025LV	LC1D25G7	LRD16
SFD212FG2		5	HLL36040LV	LC1D25G7	LRD21
SFD212GG2		7.5	HLL36060LV	LC1D32G7	LRD32
SFD212HG2		10	HLL36080LV	LC1D32G7	LRD32
SFD212JG2		15	HLL36110LV	LC1D50AG7	LRD350
SFD212KG2		20	HLL36150LV	LC1D65AG7	LRD365
SFD212LG2		25	HLL36100M73LV	LC1D80G7	LRD3363
SFD212MG2		30	HLL36150M74LV	LC1D115G7	LRD4365
SFD212NG2		40	HLL36150M74LV	LC1D150G7	LR9D5369
SFD212CG3	230	1	HLL36015LV	LC1D25G7	LRD10
SFD212DG3		2	HLL36020LV	LC1D25G7	LRD12
SFD212EG3		3	HLL36025LV	LC1D25G7	LRD14
SFD212FG3		5	HLL36035LV	LC1D25G7	LRD21
SFD212GG3		7.5	HLL36060LV	LC1D32G7	LRD22
SFD212HG3		10	HLL36070LV	LC1D32G7	LRD32
SFD212JG3		15	HLL36100LV	LC1D50AG7	LRD350
SFD212KG3		20	HLL36125LV	LC1D65AG7	LRD365
SFD212LG3		25	HLL36100M73LV	LC1D80G7	LRD3363
SFD212MG3		30	HLL36150M74LV	LC1D115G7	LRD4365
SFD212NG3		40	HLL36150M74LV	LC1D150G7	LRD4367
SFD212CG4	460	1	HLL36015LV	LC1D25G7	LRD07
SFD212DG4		2	HLL36015LV	LC1D25G7	LRD08
SFD212EG4		3	HLL36015LV	LC1D25G7	LRD10
SFD212FG4		5	HLL36020LV	LC1D25G7	LRD14
SFD212GG4		7.5	HLL36025LV	LC1D25G7	LRD16
SFD212HG4		10	HLL36035LV	LC1D25G7	LRD21
SFD212JG4		15	HLL36050LV	LC1D32G7	LRD22
SFD212KG4		20	HLL36060LV	LC1D32G7	LRD32
SFD212LG4		25	HLL36080LV	LC1D50AG7	LRD340
SFD212MG4		30	HLL36100LV	LC1D50AG7	LRD340
SFD212NG4		40	HLL36125LV	LC1D65AG7	LRD365
SFD212PG4		50	HLL36150LV	LC1D80G7	LRD3363
SFD212QG4		60	HLL36100M73LV	LC1D80G7	LRD3363
SFD212RG4		75	GS2MLU3N [1]	LC1D150G7	LRD4367
SFD212SG4		100	GS2MLU3N [1]	LC1D150G7	LR9D5369

[1] Fusible Switch used for these power ratings instead of main circuit breaker.

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Table 28 – Type 12K or 3R S-Flex Circuit Power Component Renewable Parts (Mod Y Only), Square D Catalog Numbers

S-Flex Enclosed Drive Catalog Number[1]	Input Voltage (60 Hz Vac)	Horsepower Rating (hp)	Main Circuit Breaker	Drive Input, Drive Output, or Bypass Contactor	Motor Overload Relay
SFD212C•2	208	1	HLL36015LU	LC1D25G7	LRD10
SFD212D•2		2	HLL36020LU	LC1D25G7	LRD12
SFD212E•2		3	HLL36025LU	LC1D25G7	LRD16
SFD212F•2		5	HLL36040LU	LC1D25G7	LRD21
SFD212G•2		7.5	HLL36060LU	LC1D32G7	LRD32
SFD212H•2		10	HLL36080LU	LC1D32G7	LRD32
SFD212J•2		15	HLL36110LU	LC1D50AG7	LRD350
SFD212K•2		20	HLL36150LU	LC1D65AG7	LRD365
SFD212L•2		25	JLL36200LU	LC1D80G7	LRD3363
SFD212M•2		30	JLL36200LU	LC1D115G7	LRD4365
SFD212N•2		40	GS2MLU3N[2]	LC1D150G7	LR9D5369
SFD212C•3	230	1	HLL36015LU	LC1D25G7	LRD10
SFD212D•3		2	HLL36020LU	LC1D25G7	LRD12
SFD212E•3		3	HLL36025LU	LC1D25G7	LRD14
SFD212F•3		5	HLL36035LU	LC1D25G7	LRD21
SFD212G•3		7.5	HLL36060LU	LC1D32G7	LRD22
SFD212H•3		10	HLL36070LU	LC1D32G7	LRD32
SFD212J•3		15	HLL36100LU	LC1D50AG7	LRD350
SFD212K•3		20	HLL36125LU	LC1D65AG7	LRD365
SFD212L•3		25	HLL36150LU	LC1D80G7	LRD3363
SFD212M•3		30	JLL36200LU	LC1D115G7	LRD4365
SFD212N•3		40	GS2MLU3N[2]	LC1D150G7	LRD4367
SFD212C•4	460	1	HLL36015LU	LC1D25G7	LRD07
SFD212D•4		2	HLL36015LU	LC1D25G7	LRD08
SFD212E•4		3	HLL36015LU	LC1D25G7	LRD10
SFD212F•4		5	HLL36020LU	LC1D25G7	LRD14
SFD212G•4		7.5	HLL36025LU	LC1D25G7	LRD16
SFD212H•4		10	HLL36035LU	LC1D25G7	LRD21
SFD212J•4		15	HLL36050LU	LC1D32G7	LRD22
SFD212K•4		20	HLL36060LU	LC1D32G7	LRD32
SFD212L•4		25	HLL36080LU	LC1D50AG7	LRD340
SFD212M•4		30	HLL36100LU	LC1D50AG7	LRD340
SFD212N•4		40	HLL36125LU	LC1D65AG7	LRD365
SFD212P•4		50	GS2MLU3N[2]	LC1D80G7	LRD3363
SFD212Q•4		60	GS2MLU3N[2]	LC1D80G7	LRD3363
SFD212R•4		75	GS2MLU3N[2]	LC1D150G7	LRD4367
SFD212S•4		100	GS2MLU3N[2]	LC1D150G7	LR9D5369

1 The "•" indicates the enclosure type: "A" = Type 12K and "H" = Type 3R.

2 Fusible switch used for these power ratings instead of main circuit breaker.

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Table 29 – Type 1 S-Flex Bypass Circuit Control Component Renewable Parts (Mod Y Only)—All Sizes, Square D Catalog Numbers

AFC-Off-Bypass 3-Position Selector Switch	ZB5AD3 + ZB5AZ009 + (2) ZBE203
Hand-Off-Auto 3-Position Selector Switch	ZB5AD3 + ZB5AZ009 + (4) ZBE101
AFC-Bypass 2-Position Selector Switch	ZB5AD2 + ZB5AZ009 + ZBE101 + ZBE102
Red Power On LED	80462-110-01
Green Bypass Run LED	80462-109-01

Table 30 – Type 12K or 3R S-Flex Bypass Circuit Control Component Renewable Parts (Mod Y Only)—All Sizes, Square D Catalog Numbers

AFC-Off-Bypass 3-Position Selector Switch	ZB5AD3 + ZB5AZ009 + (2) ZBE203
Hand-Off-Auto 3-Position Selector Switch	ZB5AD3 + ZB5AZ009 + (4) ZBE101
AFC-Bypass 2-Position Selector Switch	ZB5AD2 + ZB5AZ009 + ZBE101 + ZBE102
Red Power On LED	ZB5AVG4 + ZB5AV043
Green Bypass Run LED	ZB5AVG3 + ZB5AV033

Table 31 – Type 12K or 3R S-Flex Fans, Filters, and Keypad

Fan with filter, 170 mm x 150 mm, 115 Vac, 208 V, 230 V, 460 V, Type 1 and 12, Enclosures A and B	NSYCVF85M115PF
Fan with filter, 270 mm x 250 mm, 115 Vac, 208 V, 230 V,460 V, Type 1 and 12, Enclosures C and D	NSYCVF300M115PF
Fan filter, 170 mm x 150 mm	NSYCAF125
Fan filter, 270 mm x 250 mm Enclosure grill filter, 270 mm x 250 mm	NSYCAF223
Advanced keypad	VW3A1101
Advanced keypad mounting kit	VW3A1102
Advanced keypad cover kit	VW3A1103

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S-Flex™ 212 Adjustable Speed Enclosed Drive
Instruction Bulletin

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Standards, specifications, and designs may change, so please ask for confirmation that the information in this publication is current.

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30072-451-83 Rev. 06, 09/2017
Replaces 30072-451-83 Rev. 05, 08/2017

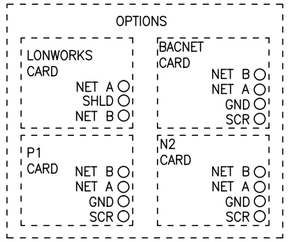
REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

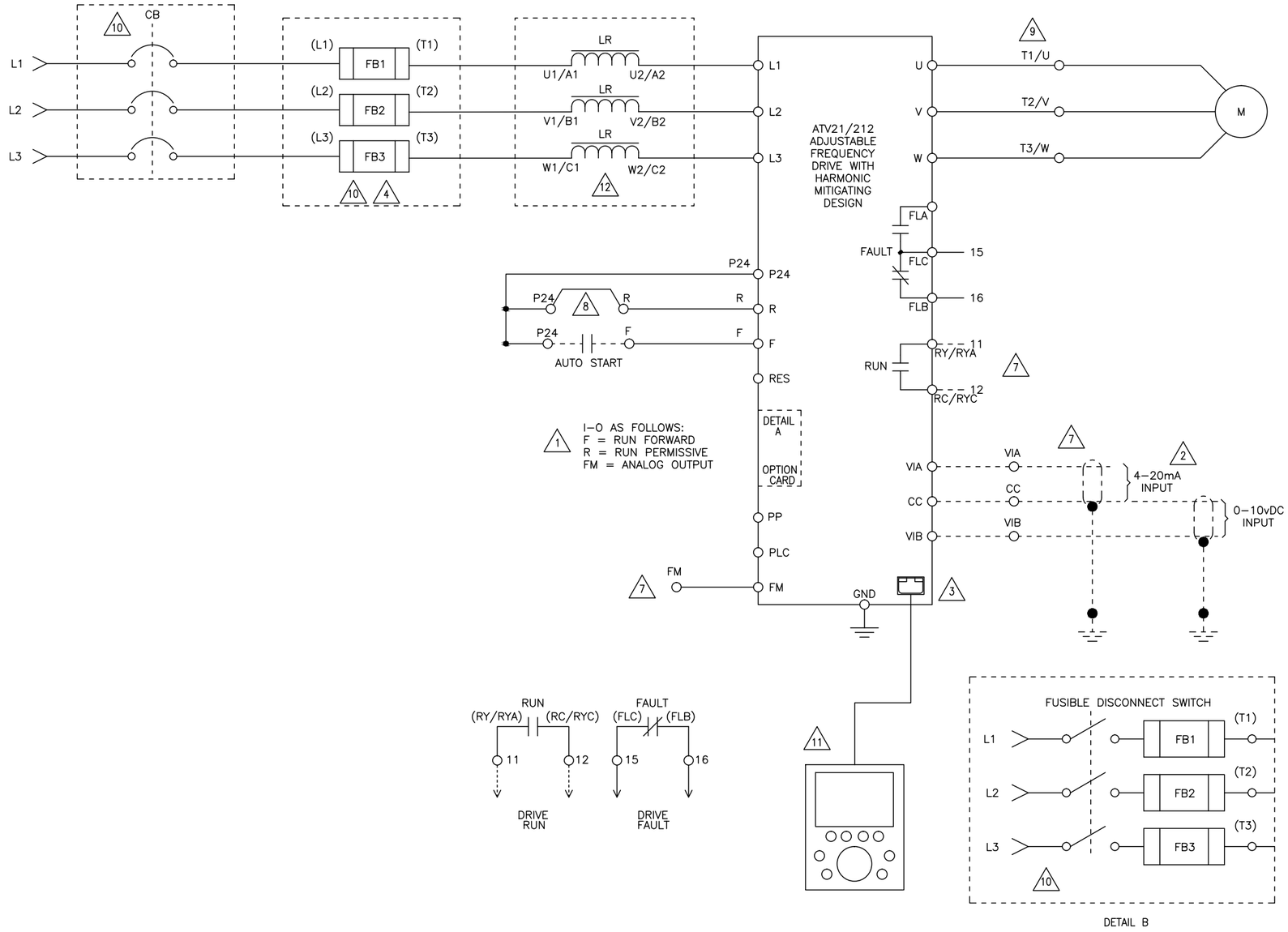
VT FACTORY CONFIGURATION				
MENU	SUB–MENU	CODE	ADJ.	DESCRIPTION
PRG	---	typ	2	60 Hz DEFAULT SETTINGS
PRG	---	acc	60	ACCELERATION TIME, IN SECONDS
PRG	---	dec	60	DECELERATION TIME, IN SECONDS
PRG	---	ll	15	LOW SPEED: 15 HZ
PRG	---	ul	60	HIGH SPEED: 60 HZ
PRG	---	pt	1	VARIABLE TORQUE MODE
MACRO	MACRO	au4	1	MACRO FUNCTION: COAST STOP
PRG	---	ulu	208/460	APPLICATION VOLTAGE DEPENDANT
PRG	f---	f130	14	RY–RC RELAY FUNCTION: DRIVE RUN
PRG	f---	f132	11	FL RELAY FUNCTION: DRIVE FAULT
PRG	f---	f201	20	VIA INPUT POINT 1 SETTING
PRG	f---	f605	0	OUTPUT PHASE FAILURE DETECTION DISABLED
PRG	f---	f692	20	BIAS OF ANALOG OUTPUT
PRG	---	au1	0	DISABLE ADAPTIVE ACC/DEC
PRG	----	cnod	2	SERIAL COMMUNICATION
PRG	----	fnod	4	SERIAL COMMUNICATION
PRG	f---	f829	5	SELECTION OF COMM. PROTOCOL

7

6

DETAIL A



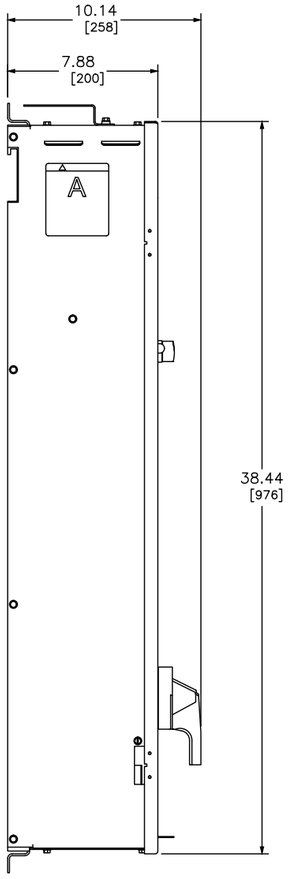


NOTES:

1. SEE PROGRAMMING AND OPERATION GUIDE, 30072–451–63
2. TO CHANGE VIA TO A VOLTAGE ANALOG INPUT, MOVE CONFIGURABLE SWITCH TO THE "V" POSITION
3. MODBUS VIA RJ45 CONNECTION NATIVE TO ALL DRIVES
4. FUSES REQUIRED ON 460V MODELS ONLY, CONVERTER ENDING IN _N4
5. VARIABLE BASED ON THE FOLLOWING:
   1: MODBUS RTU
   2: METASYS N2
   3: APOGEE FLN
   4: BAC–NET
6. FOR WHEN MOD A06, B06, C06, D06, OR NATIVE MODBUS IS REQUIRED FOR CONTROL. IF COMMUNICATION CARDS ARE USED FOR MONITORING ONLY, REFER TO INSTRUCTION BULLETIN 30072–451–83
7. NOT AVAILABLE WHEN OPTION B06 SELECTED.
8. FREEZE/FIRESTAT INTERLOCKS. REMOVE JUMPER
9. SIZE D, 40HP 208/230V AND 75–100HP 480V SUPPLIED WITH TERMINAL BLOCK FOR CUSTOMER CONNECTION
10. FUSIBLE DISCONNECT SWITCH USED IN PLACE OF CIRCUIT BREAKER AND FUSE BLOCKS ON 75 AND 100 HP 460 VOLT UNITS, SEE DETAIL B.
11. REMOTE KEYPAD AVAILABLE WITH ATV212 DRIVE ONLY, WHEN OPTION D07 IS SELECTED.
12. LINE REACTOR INCLUDED ONLY WHEN MOD X07 SELECTED

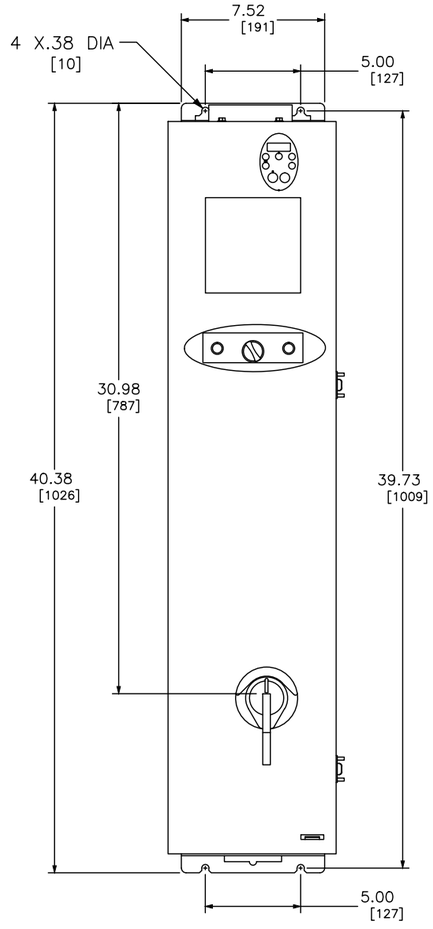
JOB NAME:	T25 DAKOTA	EQUIPMENT DESIGNATION:	**VFD**
JOB LOCATION:	SEATTLE WA	EQUIPMENT TYPE:	S–FLEX
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			SQUARE D by Schneider Electric
DATE:	September 13 2017		
DRAWING STATUS:	QUOTE	DWG# **E39863126–01**	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

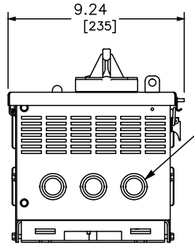


LEFT SIDE VIEW

SIZE A
1–15HP, 460 V
1–10HP, 208/230 V



FRONT VIEW



BOTTOM VIEW

ENCLOSED S–FLEX 212
VARIABLE TORQUE AC DRIVE
NEMA 1 GENERAL PURPOSE ENCLOSURE

CATALOG NUMBER	HP@VOLTAGE
SFD212CG2Y, SFD212CG3Y	1@208/230 VAC
SFD212DG2Y, SFD212DG3Y	2@208/230 VAC
SFD212EG2Y, SFD212EG3Y	3@208/230 VAC
SFD212FG2Y, SFD212FG3Y	5@208/230 VAC
SFD212GG2Y, SFD212GG3Y	7.5@208/230 VAC
SFD212HG2Y, SFD212HG3Y	10@208/230 VAC
SFD212CG4Y	1@460 VAC
SFD212DG4Y	2@460 VAC
SFD212EG4Y	3@460 VAC
SFD212FG4Y	5@460 VAC
SFD212GG4Y	7.5@460 VAC
SFD212HG4Y	10@460 VAC
SFD212JG4Y	15@460 VAC

DUAL DIMENSIONS: INCHES
MILLIMETERS

80462–220–00

JOB NAME:	T25 DAKOTA	EQUIPMENT DESIGNATION:	VFD
JOB LOCATION:	SEATTLE WA	EQUIPMENT TYPE:	S–FLEX
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION
ENGR:			
DATE:	September 13 2017		
DRAWING STATUS:	QUOTE	DWG# F39863126–01	PG 1 OF 1 REV –

Attachment D
Laboratory Analytical Data – Waste Material

July 13, 2016

Mr. Sean Trimble
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

Dear Mr. Trimble,

On July 6th, 2 samples were received by our laboratory and assigned our laboratory project number EV16070022. The project was identified as your 64001.4. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	7/13/2016 EV16070022 EV16070022-01
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	07/06/2016
CLIENT PROJECT:	64001.4	COLLECTION DATE:	7/1/2016 11:20:00 AM
CLIENT SAMPLE ID	EC-1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-7471	**0.021**	0.020	1	MG/KG	07/13/2016	RAL
Arsenic	EPA-6020	**8.3**	2.8	10	MG/KG	07/11/2016	RAL
Barium	EPA-6020	**170**	1.0	10	MG/KG	07/11/2016	RAL
Cadmium	EPA-6020	**470**	1.0	10	MG/KG	07/11/2016	RAL
Chromium	EPA-6020	**190**	1.4	10	MG/KG	07/11/2016	RAL
Copper	EPA-6020	**70**	1.0	10	MG/KG	07/11/2016	RAL
Lead	EPA-6020	**26**	1.0	10	MG/KG	07/11/2016	RAL
Nickel	EPA-6020	**150**	1.7	10	MG/KG	07/11/2016	RAL
Selenium	EPA-6020	U	12	10	MG/KG	07/11/2016	RAL
Silver	EPA-6020	U	1.0	10	MG/KG	07/11/2016	RAL
Zinc	EPA-6020	**1300**	9.8	10	MG/KG	07/11/2016	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	7/13/2016 EV16070022 EV16070022-02
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	07/06/2016
CLIENT PROJECT:	64001.4	COLLECTION DATE:	7/1/2016 11:40:00 AM
CLIENT SAMPLE ID	WC-1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-7471	U	0.020	1	MG/KG	07/13/2016	RAL
Arsenic	EPA-6020	**23**	1.4	5	MG/KG	07/11/2016	RAL
Barium	EPA-6020	**57**	0.50	5	MG/KG	07/11/2016	RAL
Cadmium	EPA-6020	**59**	0.50	5	MG/KG	07/11/2016	RAL
Chromium	EPA-6020	**85**	0.73	5	MG/KG	07/11/2016	RAL
Copper	EPA-6020	**95**	0.50	5	MG/KG	07/11/2016	RAL
Lead	EPA-6020	**32**	0.50	5	MG/KG	07/11/2016	RAL
Nickel	EPA-6020	**79**	0.86	5	MG/KG	07/11/2016	RAL
Selenium	EPA-6020	U	6.3	5	MG/KG	07/11/2016	RAL
Silver	EPA-6020	**2.2**	0.50	5	MG/KG	07/11/2016	RAL
Zinc	EPA-6020	**200**	4.9	5	MG/KG	07/11/2016	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

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ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE:	7/13/2016
		ALS SDG#:	EV16070022
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Sean Trimble		
CLIENT PROJECT:	64001.4		

LABORATORY BLANK RESULTS

MBLK-278034 - Batch R278034 - Soil by EPA-7471

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-7471	U	MG/KG	0.020	07/13/2016	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

MB-070816S - Batch 106094 - Soil by EPA-6020

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6020	U	MG/KG	0.20	07/11/2016	RAL
Barium	EPA-6020	U	MG/KG	0.10	07/11/2016	RAL
Cadmium	EPA-6020	U	MG/KG	0.10	07/11/2016	RAL
Chromium	EPA-6020	U	MG/KG	0.10	07/11/2016	RAL
Copper	EPA-6020	U	MG/KG	0.10	07/11/2016	RAL
Lead	EPA-6020	U	MG/KG	0.10	07/11/2016	RAL
Nickel	EPA-6020	U	MG/KG	0.10	07/11/2016	RAL
Selenium	EPA-6020	U	MG/KG	1.0	07/11/2016	RAL
Silver	EPA-6020	U	MG/KG	0.10	07/11/2016	RAL
Zinc	EPA-6020	U	MG/KG	0.50	07/11/2016	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE:	7/13/2016
		ALS SDG#:	EV16070022
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Sean Trimble		
CLIENT PROJECT:	64001.4		

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: R278034 - Soil by EPA-7471

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Mercury - BS	EPA-7471	**99.0**			81.8	117	07/13/2016	RAL
Mercury - BSD	EPA-7471	**102**	**3**		81.8	117	07/13/2016	RAL

ALS Test Batch ID: 106094 - Soil by EPA-6020

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Arsenic - BS	EPA-6020	**102**			80	120	07/11/2016	RAL
Arsenic - BSD	EPA-6020	**103**	**1**		80	120	07/11/2016	RAL
Barium - BS	EPA-6020	**105**			80	120	07/11/2016	RAL
Barium - BSD	EPA-6020	**107**	**2**		80	120	07/11/2016	RAL
Cadmium - BS	EPA-6020	**106**			80	120	07/11/2016	RAL
Cadmium - BSD	EPA-6020	**106**	**0**		80	120	07/11/2016	RAL
Chromium - BS	EPA-6020	**104**			80	120	07/11/2016	RAL
Chromium - BSD	EPA-6020	**105**	**1**		80	120	07/11/2016	RAL
Copper - BS	EPA-6020	**104**			80	120	07/11/2016	RAL
Copper - BSD	EPA-6020	**105**	**1**		80	120	07/11/2016	RAL
Lead - BS	EPA-6020	**105**			80	120	07/11/2016	RAL
Lead - BSD	EPA-6020	**105**	**0**		80	120	07/11/2016	RAL
Nickel - BS	EPA-6020	**104**			80	120	07/11/2016	RAL
Nickel - BSD	EPA-6020	**105**	**1**		80	120	07/11/2016	RAL
Selenium - BS	EPA-6020	**103**			80	120	07/11/2016	RAL
Selenium - BSD	EPA-6020	**104**	**1**		80	120	07/11/2016	RAL
Silver - BS	EPA-6020	**106**			80	120	07/11/2016	RAL
Silver - BSD	EPA-6020	**107**	**1**		80	120	07/11/2016	RAL
Zinc - BS	EPA-6020	**104**			80	119	07/11/2016	RAL
Zinc - BSD	EPA-6020	**104**	**0**		80	119	07/11/2016	RAL

APPROVED BY

Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

ALS Environmental
8620 Holly Drive, Suite 100
Everett, WA 98208
Phone (425) 356-2600
Fax (425) 356-2626
http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only): EV1607002 2

Date 7/1/16 Page 1 Of 1

PROJECT ID: 64001.4
REPORT TO COMPANY: EPI
PROJECT MANAGER: SEAN TRIMBLE
ADDRESS: 1180 NW MAPLE #310
ISSAQUAH, WA 98027
PHONE: 425-395-0034 FAX:
P.O. #: E-MAIL: seant@epi-wa.com
INVOICE TO COMPANY:
ATTENTION:
ADDRESS:

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA-8021	MTBE by EPA-8021 ☐ EPA-8260 ☐	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM ☐	PCB ☐ Pesticides ☐ by EPA 8081/8082	Metals-MTCA-5 ☐ RCRA-8 ☐ Pri Pol ☐ TAL ☐	Metals Other (Specify) Cu, Ni, Zn	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	OTHER (Specify)	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. EC-1	7/1/16	1120	S	1													X	X			1	
2. WC-1	7/1/16	1140	S	2													X	X			1	
3.																						
4.																						
5.																						
6.																						
7.																						
8.																						
9.																						
10.																						

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: Sean T, EPI, 7/6/16, 1349
Received By: FKS 7/6/16 13:49
2. Relinquished By:
Received By:

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis: 10 Standard | 5 | 3 | 2 | 1 | SAME DAY

Fuels & Hydrocarbon Analysis: 5 Standard | 3 | 1 | SAME DAY

OTHER:
Specify:

* Turnaround request less than standard may incur Rush Charges

July 26, 2016

Mr. Sean Trimble
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

Dear Mr. Trimble,

On July 22nd, 1 sample was received by our laboratory and assigned our laboratory project number EV16070129. The project was identified as your 64001.4. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

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ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	7/26/2016 EV16070129 EV16070129-01
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	07/22/2016
CLIENT PROJECT:	64001.4	COLLECTION DATE:	7/1/2016 11:20:00 AM
CLIENT SAMPLE ID	EC-1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Cadmium (TCLP)	EPA-6020/1311	**2.8**	0.025	5	MG/L	07/26/2016	RAL

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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE:	7/26/2016
		ALS SDG#:	EV16070129
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Sean Trimble		
CLIENT PROJECT:	64001.4		

LABORATORY BLANK RESULTS

MBLK-278741 - Batch R278741 - TCLP Extract by EPA-6020

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Cadmium (TCLP)	EPA-6020/1311	U	MG/L	0.0050	07/26/2016	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE:	7/26/2016
		ALS SDG#:	EV16070129
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Sean Trimble		
CLIENT PROJECT:	64001.4		

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: R278741 - TCLP Extract by EPA-6020

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Cadmium (TCLP) - BS	EPA-6020/1311	**108**			89.4	109	07/26/2016	RAL
Cadmium (TCLP) - BSD	EPA-6020/1311	**101**	**7**		89.4	109	07/26/2016	RAL

APPROVED BY

Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

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Everett, WA 98208
Phone (425) 356-2600
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http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

EV1607012 9

ALS Job# (Laboratory Use Only)

~~EV1607002~~ RB

Date 7/1/16 Page 1 Of 1

PROJECT ID: 64001.4
REPORT TO COMPANY: EPI
PROJECT MANAGER: SEAN TRIMBLE
ADDRESS: 1180 NW MAPLE #310
ISSAQUAH, WA 98027
PHONE: 425-395-0034 FAX:
P.O. #: E-MAIL: seant@epi-wa.com
INVOICE TO COMPANY:
ATTENTION:
ADDRESS:

ANALYSIS REQUESTED

OTHER (Specify)

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA-8021	MTBE by EPA-8021 ☐ EPA-8260 ☐	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM ☐	PCB ☐ Pesticides ☐ by EPA 8081/8082	Metals-MTCA-5 ☐ RCRA-8 ☐ Pri Pol ☐ TAL ☐	Metals Other (Specify) Cu, Ni, Zn	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	TCLP Cadmium	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. EC-1	7/1/16	1120	S	1													X	X		▲	1	
2. WC-1	7/1/16	1140	S	2													X	X		⊗	1	
3.																						
4.																						
5.																						
6.																						
7.																						
8.																						
9.																						
10.																						

LABORATORY COPY

SPECIAL INSTRUCTIONS ⊗ added 7/14/16 Standard TAT ▲ Added 7/22/16 per Sean on 2 day TAT

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: Sean T, EPI, 7/6/16, 1349
Received By: [signature] ALS 7/6/16 13:49
2. Relinquished By:
Received By:

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis: 10 Standard | (5) | 3 | 2 | 1 | SAME DAY

Fuels & Hydrocarbon Analysis: 5 Standard | 3 | 1 | SAME DAY

OTHER:
Specify:

* Turnaround request less than standard may incur Rush Charges

August 12, 2016

Mr. Sean Trimble
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

Dear Mr. Trimble,

On July 29th, 1 sample was received by our laboratory and assigned our laboratory project number EV16070174. The project was identified as your 64001.4. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

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RIGHT SOLUTIONS RIGHT PARTNER

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	8/12/2016 EV16070174 EV16070174-01
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	07/29/2016
CLIENT PROJECT:	64001.4	COLLECTION DATE:	7/27/2016 11:45:00 AM
CLIENT SAMPLE ID	Concrete Slurry-1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Chloromethane	EPA-8260	**2.1**	2.0	1	UG/L	07/29/2016	DLC
Vinyl Chloride	EPA-8260	U	0.20	1	UG/L	07/29/2016	DLC
Bromomethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Chloroethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Carbon Tetrachloride	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Trichlorofluoromethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,1-Dichloroethene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Methylene Chloride	EPA-8260	U	5.0	1	UG/L	07/29/2016	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,1-Dichloroethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Cis-1,2-Dichloroethene	EPA-8260	**2.2**	2.0	1	UG/L	07/29/2016	DLC
2,2-Dichloropropane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Bromochloromethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Chloroform	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,1,1-Trichloroethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,1-Dichloropropene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,2-Dichloroethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Trichloroethene	EPA-8260	**72**	20	10	UG/L	08/01/2016	DLC
1,2-Dichloropropane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Dibromomethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Bromodichloromethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,1,2-Trichloroethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,3-Dichloropropane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Tetrachloroethylene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Dibromochloromethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,2-Dibromoethane	EPA-8260	U	0.010	1	UG/L	07/29/2016	DLC
Chlorobenzene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Bromoform	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,2,3-Trichloropropane	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Bromobenzene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
2-Chlorotoluene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
4-Chlorotoluene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,3-Dichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC

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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	8/12/2016 EV16070174 EV16070174-01
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	07/29/2016
CLIENT PROJECT:	64001.4	COLLECTION DATE:	7/27/2016 11:45:00 AM
CLIENT SAMPLE ID	Concrete Slurry-1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
1,4-Dichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,2-Dichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	10	1	UG/L	07/29/2016	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Hexachlorobutadiene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/29/2016	DLC
Mercury	EPA-245.1	U	0.20	1	UG/L	08/09/2016	RAL
Arsenic	EPA-200.8	**7.0**	1.0	1	UG/L	08/05/2016	RAL
Barium	EPA-200.8	**140**	1.0	1	UG/L	08/05/2016	RAL
Cadmium	EPA-200.8	**6.9**	1.0	1	UG/L	08/05/2016	RAL
Chromium	EPA-200.8	**8000**	10	5	UG/L	08/05/2016	RAL
Copper	EPA-200.8	**200**	2.0	1	UG/L	08/05/2016	RAL
Lead	EPA-200.8	**7.7**	1.0	1	UG/L	08/05/2016	RAL
Nickel	EPA-200.8	**40**	2.0	1	UG/L	08/05/2016	RAL
Selenium	EPA-200.8	**8.0**	4.0	1	UG/L	08/05/2016	RAL
Silver	EPA-200.8	U	1.0	1	UG/L	08/05/2016	RAL
Zinc	EPA-200.8	**24**	2.5	1	UG/L	08/05/2016	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
1,2-Dichloroethane-d4	EPA-8260	**116**	07/29/2016	DLC
1,2-Dichloroethane-d4 10X Dilution	EPA-8260	**106**	08/01/2016	DLC
4-Bromofluorobenzene	EPA-8260	**88.0**	07/29/2016	DLC
4-Bromofluorobenzene 10X Dilution	EPA-8260	**99.3**	08/01/2016	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

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CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

CLIENT CONTACT: Sean Trimble

CLIENT PROJECT: 64001.4

DATE: 8/12/2016

ALS SDG#: EV16070174

WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-072816W2 - Batch 106694 - Water by EPA-8260

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Chloromethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Vinyl Chloride	EPA-8260	U	UG/L	0.20	07/28/2016	DLC
Bromomethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Chloroethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Carbon Tetrachloride	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Trichlorofluoromethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,1-Dichloroethene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Methylene Chloride	EPA-8260	U	UG/L	5.0	07/28/2016	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,1-Dichloroethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Cis-1,2-Dichloroethene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
2,2-Dichloropropane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Bromochloromethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Chloroform	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,1,1-Trichloroethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,1-Dichloropropene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,2-Dichloroethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Trichloroethene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,2-Dichloropropane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Dibromomethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Bromodichloromethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Toluene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,1,2-Trichloroethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,3-Dichloropropane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Tetrachloroethylene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Dibromochloromethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,2-Dibromoethane	EPA-8260	U	UG/L	0.010	07/28/2016	DLC
Chlorobenzene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Bromoform	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,2,3-Trichloropropane	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Bromobenzene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
2-Chlorotoluene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
4-Chlorotoluene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,3-Dichlorobenzene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC

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CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027
CLIENT CONTACT: Sean Trimble
CLIENT PROJECT: 64001.4

DATE: 8/12/2016
ALS SDG#: EV16070174
WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-072816W2 - Batch 106694 - Water by EPA-8260

1,4-Dichlorobenzene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,2-Dichlorobenzene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	UG/L	10	07/28/2016	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
Hexachlorobutadiene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	UG/L	2.0	07/28/2016	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

MBLK-279591 - Batch R279591 - Water by EPA-245.1

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-245.1	U	UG/L	0.20	08/09/2016	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

MB-080416W - Batch 106828 - Water by EPA-200.8

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-200.8	U	UG/L	1.0	08/08/2016	RAL
Barium	EPA-200.8	**1.1**	UG/L	1.0	08/08/2016	RAL
Cadmium	EPA-200.8	U	UG/L	1.0	08/08/2016	RAL
Chromium	EPA-200.8	U	UG/L	2.0	08/08/2016	RAL
Copper	EPA-200.8	U	UG/L	2.0	08/08/2016	RAL
Lead	EPA-200.8	U	UG/L	1.0	08/08/2016	RAL
Nickel	EPA-200.8	U	UG/L	2.0	08/08/2016	RAL
Selenium	EPA-200.8	U	UG/L	4.0	08/08/2016	RAL
Silver	EPA-200.8	U	UG/L	1.0	08/08/2016	RAL
Zinc	EPA-200.8	U	UG/L	2.5	08/08/2016	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

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CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

CLIENT CONTACT: Sean Trimble
CLIENT PROJECT: 64001.4

DATE: 8/12/2016
ALS SDG#: EV16070174
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 106694 - Water by EPA-8260

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
1,1-Dichloroethene - BS	EPA-8260	**107**			72.5	136	07/28/2016	DLC
1,1-Dichloroethene - BSD	EPA-8260	**118**	**10**		72.5	136	07/28/2016	DLC
Trichloroethene - BS	EPA-8260	**103**			74.4	141	07/28/2016	DLC
Trichloroethene - BSD	EPA-8260	**119**	**14**		74.4	141	07/28/2016	DLC
Toluene - BS	EPA-8260	**90.1**			71.7	139	07/28/2016	DLC
Toluene - BSD	EPA-8260	**102**	**13**		71.7	139	07/28/2016	DLC
Chlorobenzene - BS	EPA-8260	**93.6**			73	131	07/28/2016	DLC
Chlorobenzene - BSD	EPA-8260	**108**	**14**		73	131	07/28/2016	DLC

ALS Test Batch ID: R279591 - Water by EPA-245.1

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Mercury - BS	EPA-245.1	**103**			80.6	118	08/09/2016	RAL
Mercury - BSD	EPA-245.1	**104**	**1**		80.6	118	08/09/2016	RAL

ALS Test Batch ID: 106828 - Water by EPA-200.8

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Arsenic - BS	EPA-200.8	**97.1**			89.1	110	08/08/2016	RAL
Arsenic - BSD	EPA-200.8	**93.6**	**4**		89.1	110	08/11/2016	RAL
Barium - BS	EPA-200.8	**100**			88.5	108	08/08/2016	RAL
Barium - BSD	EPA-200.8	**95.2**	**5**		88.5	108	08/11/2016	RAL
Cadmium - BS	EPA-200.8	**100**			89.4	109	08/08/2016	RAL
Cadmium - BSD	EPA-200.8	**94.8**	**6**		89.4	109	08/11/2016	RAL
Chromium - BS	EPA-200.8	**95.6**			86.2	107	08/08/2016	RAL
Chromium - BSD	EPA-200.8	**94.3**	**1**		86.2	107	08/11/2016	RAL
Copper - BS	EPA-200.8	**93.4**			85.4	109	08/08/2016	RAL
Copper - BSD	EPA-200.8	**93.9**	**0**		85.4	109	08/11/2016	RAL
Lead - BS	EPA-200.8	**96.7**			87.5	107	08/08/2016	RAL
Lead - BSD	EPA-200.8	**93.9**	**3**		87.5	107	08/11/2016	RAL
Nickel - BS	EPA-200.8	**92.8**			85.4	109	08/08/2016	RAL
Nickel - BSD	EPA-200.8	**94.7**	**2**		85.4	109	08/11/2016	RAL
Selenium - BS	EPA-200.8	**100**			90.2	113	08/08/2016	RAL
Selenium - BSD	EPA-200.8	**96.3**	**4**		90.2	113	08/11/2016	RAL
Silver - BS	EPA-200.8	**99.7**			80	120	08/08/2016	RAL
Silver - BSD	EPA-200.8	**96.6**	**3**		80	120	08/11/2016	RAL
Zinc - BS	EPA-200.8	**101**			88.2	111	08/08/2016	RAL
Zinc - BSD	EPA-200.8	**95.9**	**5**		88.2	111	08/11/2016	RAL

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CERTIFICATE OF ANALYSIS

APPROVED BY

Laboratory Director

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ALS Environmental
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http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only): EV1607017 4

Date 7/27/16 Page 1 Of 1

PROJECT ID: 64001.4
REPORT TO COMPANY: EPI
PROJECT MANAGER: SEAN TRIMBLE
ADDRESS: 1180 NW MAPLE
ISSAQUAH, WA
PHONE: 206-501-5545 FAX:
P.O. #: E-MAIL: seant@epi-wa.com
INVOICE TO COMPANY:
ATTENTION:
ADDRESS:

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA-8021	MTBE by EPA-8021 ☐ EPA-8260 ☐	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM ☐	PCB ☐ Pesticides ☐ by EPA 8081/8082	Metals-MTCA-5 ☐ RCRA-8 ☒ Pri Pol ☐ TAL ☐	Metals Other (Specify) Cu, Ni, Zn	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. CONCRETE SLURRY-1	7/27/16	1145	W	1						X							X	X		3	
2.																					
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: Sean T EPI 7/27/16 1345
Received By: KatieMcClintock/ALS/7-29-16/ 1:10 pm
2. Relinquished By:
Received By:

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis: ~~10~~ Standard | 5 | 3 | 2 | 1 | SAME DAY

Fuels & Hydrocarbon Analysis: 5 Standard | 3 | 1 | SAME DAY

OTHER:
Specify:

* Turnaround request less than standard may incur Rush Charges

April 25, 2016

Mr. Sean Trimble
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

Dear Mr. Trimble,

On April 15th, 1 sample was received by our laboratory and assigned our laboratory project number EV16040091. The project was identified as your 64001.3 - Task 7. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	4/25/2016 EV16040091 EV16040091-01
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	04/15/2016
CLIENT PROJECT:	64001.3 - Task 7	COLLECTION DATE:	4/14/2016 10:00:00 AM
CLIENT SAMPLE ID	SP-4-14	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Chloromethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Vinyl Chloride	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Bromomethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Chloroethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Carbon Tetrachloride	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Trichlorofluoromethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,1-Dichloroethene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Methylene Chloride	EPA-8260	U	0.020	1	MG/KG	04/15/2016	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,1-Dichloroethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Cis-1,2-Dichloroethene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
2,2-Dichloropropane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Bromochloromethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Chloroform	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,1,1-Trichloroethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,1-Dichloropropene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,2-Dichloroethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Trichloroethene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,2-Dichloropropane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Dibromomethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Bromodichloromethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,1,2-Trichloroethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,3-Dichloropropane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Tetrachloroethylene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Dibromochloromethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,2-Dibromoethane	EPA-8260	U	0.0050	1	MG/KG	04/15/2016	DLC
Chlorobenzene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Bromoform	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,2,3-Trichloropropane	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Bromobenzene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
2-Chlorotoluene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
4-Chlorotoluene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,3-Dichlorobenzene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC

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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	4/25/2016 EV16040091 EV16040091-01
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	04/15/2016
CLIENT PROJECT:	64001.3 - Task 7	COLLECTION DATE:	4/14/2016 10:00:00 AM
CLIENT SAMPLE ID	SP-4-14	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
1,4-Dichlorobenzene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,2-Dichlorobenzene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	0.050	1	MG/KG	04/15/2016	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Hexachlorobutadiene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	0.010	1	MG/KG	04/15/2016	DLC
Mercury	EPA-7471	**0.035**	0.020	1	MG/KG	04/15/2016	RAL
Arsenic	EPA-6020	**2.8**	1.0	5	MG/KG	04/19/2016	RAL
Barium	EPA-6020	**33**	0.50	5	MG/KG	04/19/2016	RAL
Cadmium	EPA-6020	**10**	0.50	5	MG/KG	04/19/2016	RAL
Chromium	EPA-6020	**420**	0.50	5	MG/KG	04/19/2016	RAL
Copper	EPA-6020	**40**	0.50	5	MG/KG	04/19/2016	RAL
Lead	EPA-6020	**32**	0.50	5	MG/KG	04/19/2016	RAL
Nickel	EPA-6020	**11**	0.50	5	MG/KG	04/19/2016	RAL
Selenium	EPA-6020	U	5.0	5	MG/KG	04/19/2016	RAL
Silver	EPA-6020	U	0.50	5	MG/KG	04/19/2016	RAL
Zinc	EPA-6020	**110**	2.5	5	MG/KG	04/19/2016	RAL
Chromium (TCLP)	EPA-6020/1311	**0.15**	0.025	5	MG/L	04/22/2016	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
1,2-Dichloroethane-d4	EPA-8260	**125**	04/15/2016	DLC
4-Bromofluorobenzene	EPA-8260	**113**	04/15/2016	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

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CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

CLIENT CONTACT: Sean Trimble
CLIENT PROJECT: 64001.3 - Task 7

DATE: 4/25/2016
ALS SDG#: EV16040091
WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-041516S - Batch 103354 - Soil by EPA-8260

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Chloromethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Vinyl Chloride	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Bromomethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Chloroethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Carbon Tetrachloride	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Trichlorofluoromethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,1-Dichloroethene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Methylene Chloride	EPA-8260	U	MG/KG	0.020	04/15/2016	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,1-Dichloroethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Cis-1,2-Dichloroethene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
2,2-Dichloropropane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Bromochloromethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Chloroform	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,1,1-Trichloroethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,1-Dichloropropene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,2-Dichloroethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Trichloroethene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,2-Dichloropropane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Dibromomethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Bromodichloromethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Toluene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,1,2-Trichloroethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,3-Dichloropropane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Tetrachloroethylene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Dibromochloromethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,2-Dibromoethane	EPA-8260	U	MG/KG	0.0050	04/15/2016	DLC
Chlorobenzene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Bromoform	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,2,3-Trichloropropane	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Bromobenzene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
2-Chlorotoluene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
4-Chlorotoluene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,3-Dichlorobenzene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC

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CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

CLIENT CONTACT: Sean Trimble
CLIENT PROJECT: 64001.3 - Task 7

DATE: 4/25/2016
ALS SDG#: EV16040091
WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-041516S - Batch 103354 - Soil by EPA-8260

1,4-Dichlorobenzene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,2-Dichlorobenzene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	MG/KG	0.050	04/15/2016	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
Hexachlorobutadiene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	MG/KG	0.010	04/15/2016	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

MBLK-272690 - Batch R272690 - Soil by EPA-7471

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-7471	U	MG/KG	0.020	04/15/2016	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

MB-041516S - Batch 103347 - Soil by EPA-6020

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6020	U	MG/KG	0.20	04/15/2016	RAL
Barium	EPA-6020	U	MG/KG	0.10	04/15/2016	RAL
Cadmium	EPA-6020	U	MG/KG	0.10	04/15/2016	RAL
Chromium	EPA-6020	U	MG/KG	0.10	04/15/2016	RAL
Copper	EPA-6020	U	MG/KG	0.10	04/15/2016	RAL
Lead	EPA-6020	U	MG/KG	0.10	04/15/2016	RAL
Nickel	EPA-6020	U	MG/KG	0.10	04/15/2016	RAL
Selenium	EPA-6020	U	MG/KG	1.0	04/15/2016	RAL
Silver	EPA-6020	U	MG/KG	0.10	04/15/2016	RAL
Zinc	EPA-6020	U	MG/KG	0.50	04/15/2016	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

MBLK-4222016 - Batch R273085 - TCLP Extract by EPA-6020

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Chromium (TCLP)	EPA-6020/1311	U	MG/L	0.0050	04/22/2016	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

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CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

CLIENT CONTACT: Sean Trimble
CLIENT PROJECT: 64001.3 - Task 7

DATE: 4/25/2016
ALS SDG#: EV16040091
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 103354 - Soil by EPA-8260

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
1,1-Dichloroethene - BS	EPA-8260	**97.3**			73	138	04/15/2016	DLC
1,1-Dichloroethene - BSD	EPA-8260	**94.1**	**3**		73	138	04/15/2016	DLC
Trichloroethene - BS	EPA-8260	**117**			75	136	04/15/2016	DLC
Trichloroethene - BSD	EPA-8260	**116**	**1**		75	136	04/15/2016	DLC
Toluene - BS	EPA-8260	**103**			76	134	04/15/2016	DLC
Toluene - BSD	EPA-8260	**102**	**1**		76	134	04/15/2016	DLC
Chlorobenzene - BS	EPA-8260	**91.7**			79	128	04/15/2016	DLC
Chlorobenzene - BSD	EPA-8260	**90.1**	**2**		79	128	04/15/2016	DLC

ALS Test Batch ID: R272690 - Soil by EPA-7471

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Mercury - BS	EPA-7471	**98.6**			81.8	117	04/15/2016	RAL
Mercury - BSD	EPA-7471	**98.8**	**0**		81.8	117	04/15/2016	RAL

ALS Test Batch ID: 103347 - Soil by EPA-6020

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Arsenic - BS	EPA-6020	**101**			80	120	04/15/2016	RAL
Arsenic - BSD	EPA-6020	**104**	**3**		80	120	04/15/2016	RAL
Barium - BS	EPA-6020	**108**			80	120	04/15/2016	RAL
Barium - BSD	EPA-6020	**107**	**0**		80	120	04/15/2016	RAL
Cadmium - BS	EPA-6020	**107**			80	120	04/15/2016	RAL
Cadmium - BSD	EPA-6020	**109**	**2**		80	120	04/15/2016	RAL
Chromium - BS	EPA-6020	**104**			80	120	04/15/2016	RAL
Chromium - BSD	EPA-6020	**107**	**3**		80	120	04/15/2016	RAL
Copper - BS	EPA-6020	**103**			80	120	04/15/2016	RAL
Copper - BSD	EPA-6020	**106**	**3**		80	120	04/15/2016	RAL
Lead - BS	EPA-6020	**104**			80	120	04/15/2016	RAL
Lead - BSD	EPA-6020	**106**	**2**		80	120	04/15/2016	RAL
Nickel - BS	EPA-6020	**102**			80	120	04/15/2016	RAL
Nickel - BSD	EPA-6020	**105**	**3**		80	120	04/15/2016	RAL
Selenium - BS	EPA-6020	**102**			80	120	04/15/2016	RAL
Selenium - BSD	EPA-6020	**105**	**3**		80	120	04/15/2016	RAL
Silver - BS	EPA-6020	**105**			80	120	04/15/2016	RAL
Silver - BSD	EPA-6020	**108**	**3**		80	120	04/15/2016	RAL
Zinc - BS	EPA-6020	**103**			80	119	04/15/2016	RAL
Zinc - BSD	EPA-6020	**106**	**3**		80	119	04/15/2016	RAL

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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE:	4/25/2016
		ALS SDG#:	EV16040091
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Sean Trimble		
CLIENT PROJECT:	64001.3 - Task 7		

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: R273085 - TCLP Extract by EPA-6020

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Chromium (TCLP) - BS	EPA-6020/1311	**96.2**			86.2	107	04/22/2016	RAL
Chromium (TCLP) - BSD	EPA-6020/1311	**97.4**	**1**		86.2	107	04/22/2016	RAL

APPROVED BY

Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
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ALS Environmental
8620 Holly Drive, Suite 100
Everett, WA 98208
Phone (425) 356-2600
Fax (425) 356-2626
http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only): EV1604009 1

Date 4/14/16 Page 1 Of 1

PROJECT ID: 64001.3 (TASK 7)
REPORT TO COMPANY: EPI
PROJECT MANAGER: SEAN TRIMBLE
ADDRESS: 1180 NW MAPLE ST, #310
ISSAQUAH, WA 98027
PHONE: 425-395-0010 FAX:
P.O. #: E-MAIL: seant@epi-wa.com
INVOICE TO COMPANY:
ATTENTION:
ADDRESS:

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA-8021	MTBE by EPA-8021 ☐ EPA-8260 ☐	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM ☐	PCB ☐ Pesticides ☐ by EPA 8081/8082	Metals-MTCA-5 ☐ RCRA-8 ☐ Pri Pol ☐ TAL ☐	Metals Other (Specify) Cu, Ni, Zn	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	OTHER (Specify) TCLP Chromium	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. SP-4-14	4/14/16	1000	S	1						X							X	X		(X)	2	
2.																						
3.																						
4.																						
5.																						
6.																						
7.																						
8.																						
9.																						
10.																						

SPECIAL INSTRUCTIONS (X) Added 4/20/16 per Sean Standard TAT

SIGNATURES (Name, Company, Date, Time):
1. Relinquished By: Sean T, EPI, 4/14/16 1500
Received By: ALS 4.15.16 9:36 AM
2. Relinquished By:
Received By:

TURNAROUND REQUESTED in Business Days*
Organic, Metals & Inorganic Analysis: 10 Standard | 5 | 3 | 2 | 1 | SAME DAY
Fuels & Hydrocarbon Analysis: 5 Standard | 3 | 1 | SAME DAY
OTHER: Specify:

* Turnaround request less than standard may incur Rush Charges

July 19, 2017

Mr. Sean Trimble
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

Dear Mr. Trimble,

On July 17th, 2 samples were received by our laboratory and assigned our laboratory project number EV17070055. The project was identified as your 64001. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	7/19/2017 EV17070055 EV17070055-01
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	07/17/2017
CLIENT PROJECT:	64001	COLLECTION DATE:	7/17/2017 9:30:00 AM
CLIENT SAMPLE ID	Drum: Soil-1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Chloromethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Vinyl Chloride	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Bromomethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Chloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Carbon Tetrachloride	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Trichlorofluoromethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1-Dichloroethene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Methylene Chloride	EPA-8260	U	0.020	1	MG/KG	07/18/2017	DLC
Trans-1,2-Dichloroethene	EPA-8260	**0.024**	0.010	1	MG/KG	07/18/2017	DLC
1,1-Dichloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Cis-1,2-Dichloroethene	EPA-8260	**4.9**	0.96	10	MG/KG	07/19/2017	DLC
2,2-Dichloropropane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Bromochloromethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Chloroform	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1,1-Trichloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1-Dichloropropene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,2-Dichloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Trichloroethene	EPA-8260	**38**	0.10	10	MG/KG	07/19/2017	DLC
1,2-Dichloropropane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Dibromomethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Bromodichloromethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1,2-Trichloroethane	EPA-8260	**0.014**	0.010	1	MG/KG	07/18/2017	DLC
1,3-Dichloropropane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Tetrachloroethylene	EPA-8260	**4.6**	0.10	10	MG/KG	07/19/2017	DLC
Dibromochloromethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,2-Dibromoethane	EPA-8260	U	0.0050	1	MG/KG	07/18/2017	DLC
Chlorobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Bromoform	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,2,3-Trichloropropane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Bromobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
2-Chlorotoluene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
4-Chlorotoluene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,3-Dichlorobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC

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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	7/19/2017 EV17070055 EV17070055-01
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	07/17/2017
CLIENT PROJECT:	64001	COLLECTION DATE:	7/17/2017 9:30:00 AM
CLIENT SAMPLE ID	Drum: Soil-1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
1,4-Dichlorobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,2-Dichlorobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	0.050	1	MG/KG	07/18/2017	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Hexachlorobutadiene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Mercury	EPA-7471	**0.14**	0.020	1	MG/KG	07/18/2017	RAL
Arsenic	EPA-6020	**4.8**	1.0	5	MG/KG	07/18/2017	RAL
Barium	EPA-6020	**79**	0.50	5	MG/KG	07/18/2017	RAL
Cadmium	EPA-6020	**11**	0.50	5	MG/KG	07/18/2017	RAL
Chromium	EPA-6020	**180**	0.50	5	MG/KG	07/18/2017	RAL
Copper	EPA-6020	**54**	0.50	5	MG/KG	07/18/2017	RAL
Lead	EPA-6020	**39**	0.50	5	MG/KG	07/18/2017	RAL
Nickel	EPA-6020	**51**	0.51	5	MG/KG	07/18/2017	RAL
Selenium	EPA-6020	U	5.0	5	MG/KG	07/18/2017	RAL
Silver	EPA-6020	**0.82**	0.50	5	MG/KG	07/18/2017	RAL
Zinc	EPA-6020	**200**	2.9	5	MG/KG	07/18/2017	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
1,2-Dichloroethane-d4	EPA-8260	**108**	07/18/2017	DLC
1,2-Dichloroethane-d4 10X Dilution	EPA-8260	**107**	07/19/2017	DLC
Toluene-d8 10X Dilution	EPA-8260	**98.6**	07/19/2017	DLC
4-Bromofluorobenzene	EPA-8260	**122**	07/18/2017	DLC
4-Bromofluorobenzene 10X Dilution	EPA-8260	**98.1**	07/19/2017	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	7/19/2017 EV17070055 EV17070055-02
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	07/17/2017
CLIENT PROJECT:	64001	COLLECTION DATE:	7/17/2017 10:45:00 AM
CLIENT SAMPLE ID	Drum: Soil-2	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Chloromethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Vinyl Chloride	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Bromomethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Chloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Carbon Tetrachloride	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Trichlorofluoromethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1-Dichloroethene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Methylene Chloride	EPA-8260	U	0.020	1	MG/KG	07/18/2017	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1-Dichloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Cis-1,2-Dichloroethene	EPA-8260	**2.6**	0.84	10	MG/KG	07/19/2017	DLC
2,2-Dichloropropane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Bromochloromethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Chloroform	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1,1-Trichloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1-Dichloropropene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,2-Dichloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Trichloroethene	EPA-8260	**9.8**	0.10	10	MG/KG	07/19/2017	DLC
1,2-Dichloropropane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Dibromomethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Bromodichloromethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1,2-Trichloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,3-Dichloropropane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Tetrachloroethylene	EPA-8260	**0.054**	0.010	1	MG/KG	07/18/2017	DLC
Dibromochloromethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,2-Dibromoethane	EPA-8260	U	0.0050	1	MG/KG	07/18/2017	DLC
Chlorobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Bromoform	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,2,3-Trichloropropane	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Bromobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
2-Chlorotoluene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
4-Chlorotoluene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,3-Dichlorobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,4-Dichlorobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC

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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	7/19/2017 EV17070055 EV17070055-02
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	07/17/2017
CLIENT PROJECT:	64001	COLLECTION DATE:	7/17/2017 10:45:00 AM
CLIENT SAMPLE ID	Drum: Soil-2	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
1,2-Dichlorobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	0.050	1	MG/KG	07/18/2017	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Hexachlorobutadiene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	0.010	1	MG/KG	07/18/2017	DLC
Mercury	EPA-7471	**0.077**	0.020	1	MG/KG	07/18/2017	RAL
Arsenic	EPA-6020	**5.8**	1.0	5	MG/KG	07/18/2017	RAL
Barium	EPA-6020	**72**	0.50	5	MG/KG	07/18/2017	RAL
Cadmium	EPA-6020	**19**	0.50	5	MG/KG	07/18/2017	RAL
Chromium	EPA-6020	**380**	0.50	5	MG/KG	07/18/2017	RAL
Copper	EPA-6020	**90**	0.50	5	MG/KG	07/18/2017	RAL
Lead	EPA-6020	**34**	0.50	5	MG/KG	07/18/2017	RAL
Nickel	EPA-6020	**75**	0.51	5	MG/KG	07/18/2017	RAL
Selenium	EPA-6020	U	5.0	5	MG/KG	07/18/2017	RAL
Silver	EPA-6020	**1.1**	0.50	5	MG/KG	07/18/2017	RAL
Zinc	EPA-6020	**140**	2.9	5	MG/KG	07/18/2017	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
1,2-Dichloroethane-d4	EPA-8260	**103**	07/18/2017	DLC
1,2-Dichloroethane-d4 10X Dilution	EPA-8260	**105**	07/19/2017	DLC
Toluene-d8 10X Dilution	EPA-8260	**98.7**	07/19/2017	DLC
4-Bromofluorobenzene	EPA-8260	**108**	07/18/2017	DLC
4-Bromofluorobenzene 10X Dilution	EPA-8260	**97.9**	07/19/2017	DLC

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CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

CLIENT CONTACT: Sean Trimble
CLIENT PROJECT: 64001

DATE: 7/19/2017
ALS SDG#: EV17070055
WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-071817S - Batch 118251 - Soil by EPA-8260

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Chloromethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Vinyl Chloride	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Bromomethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Chloroethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Carbon Tetrachloride	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Trichlorofluoromethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,1-Dichloroethene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Methylene Chloride	EPA-8260	U	MG/KG	0.020	07/18/2017	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,1-Dichloroethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Cis-1,2-Dichloroethene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
2,2-Dichloropropane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Bromochloromethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Chloroform	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,1,1-Trichloroethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,1-Dichloropropene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,2-Dichloroethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Trichloroethene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,2-Dichloropropane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Dibromomethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Bromodichloromethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Toluene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,1,2-Trichloroethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,3-Dichloropropane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Tetrachloroethylene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Dibromochloromethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,2-Dibromoethane	EPA-8260	U	MG/KG	0.0050	07/18/2017	DLC
Chlorobenzene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Bromoform	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,2,3-Trichloropropane	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Bromobenzene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
2-Chlorotoluene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
4-Chlorotoluene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,3-Dichlorobenzene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC

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CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027
CLIENT CONTACT: Sean Trimble
CLIENT PROJECT: 64001

DATE: 7/19/2017
ALS SDG#: EV17070055
WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-071817S - Batch 118251 - Soil by EPA-8260

1,4-Dichlorobenzene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,2-Dichlorobenzene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	MG/KG	0.050	07/18/2017	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
Hexachlorobutadiene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	MG/KG	0.010	07/18/2017	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

MBLK-298436 - Batch R298436 - Soil by EPA-7471

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-7471	U	MG/KG	0.020	07/18/2017	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

MB-071817S - Batch 118220 - Soil by EPA-6020

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6020	U	MG/KG	0.20	07/18/2017	RAL
Barium	EPA-6020	U	MG/KG	0.10	07/18/2017	RAL
Cadmium	EPA-6020	U	MG/KG	0.10	07/18/2017	RAL
Chromium	EPA-6020	U	MG/KG	0.10	07/18/2017	RAL
Copper	EPA-6020	U	MG/KG	0.10	07/18/2017	RAL
Lead	EPA-6020	U	MG/KG	0.10	07/18/2017	RAL
Nickel	EPA-6020	U	MG/KG	0.10	07/18/2017	RAL
Selenium	EPA-6020	U	MG/KG	1.0	07/18/2017	RAL
Silver	EPA-6020	U	MG/KG	0.10	07/18/2017	RAL
Zinc	EPA-6020	U	MG/KG	0.50	07/18/2017	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

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CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

CLIENT CONTACT: Sean Trimble
CLIENT PROJECT: 64001

DATE: 7/19/2017
ALS SDG#: EV17070055
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 118251 - Soil by EPA-8260

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
1,1-Dichloroethene - BS	EPA-8260	**90.7**			73	138	07/18/2017	DLC
1,1-Dichloroethene - BSD	EPA-8260	**87.1**	**4**		73	138	07/18/2017	DLC
Trichloroethene - BS	EPA-8260	**92.9**			75	136	07/18/2017	DLC
Trichloroethene - BSD	EPA-8260	**90.3**	**3**		75	136	07/18/2017	DLC
Toluene - BS	EPA-8260	**94.0**			76	134	07/18/2017	DLC
Toluene - BSD	EPA-8260	**91.5**	**3**		76	134	07/18/2017	DLC
Chlorobenzene - BS	EPA-8260	**100**			79	128	07/18/2017	DLC
Chlorobenzene - BSD	EPA-8260	**96.3**	**4**		79	128	07/18/2017	DLC

ALS Test Batch ID: R298436 - Soil by EPA-7471

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Mercury - BS	EPA-7471	**102**			81.8	117	07/18/2017	RAL
Mercury - BSD	EPA-7471	**108**	**6**		81.8	117	07/18/2017	RAL

ALS Test Batch ID: 118220 - Soil by EPA-6020

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Arsenic - BS	EPA-6020	**96.8**			80	120	07/18/2017	RAL
Arsenic - BSD	EPA-6020	**96.6**	**0**		80	120	07/18/2017	RAL
Barium - BS	EPA-6020	**96.5**			80	120	07/18/2017	RAL
Barium - BSD	EPA-6020	**95.3**	**1**		80	120	07/18/2017	RAL
Cadmium - BS	EPA-6020	**96.0**			80	120	07/18/2017	RAL
Cadmium - BSD	EPA-6020	**94.6**	**1**		80	120	07/18/2017	RAL
Chromium - BS	EPA-6020	**97.9**			80	120	07/18/2017	RAL
Chromium - BSD	EPA-6020	**97.1**	**1**		80	120	07/18/2017	RAL
Copper - BS	EPA-6020	**96.4**			80	120	07/18/2017	RAL
Copper - BSD	EPA-6020	**96.8**	**0**		80	120	07/18/2017	RAL
Lead - BS	EPA-6020	**93.8**			80	120	07/18/2017	RAL
Lead - BSD	EPA-6020	**94.5**	**1**		80	120	07/18/2017	RAL
Nickel - BS	EPA-6020	**96.6**			80	120	07/18/2017	RAL
Nickel - BSD	EPA-6020	**96.9**	**0**		80	120	07/18/2017	RAL
Selenium - BS	EPA-6020	**98.5**			80	120	07/18/2017	RAL
Selenium - BSD	EPA-6020	**97.2**	**1**		80	120	07/18/2017	RAL
Silver - BS	EPA-6020	**96.8**			80	120	07/18/2017	RAL
Silver - BSD	EPA-6020	**97.4**	**1**		80	120	07/18/2017	RAL
Zinc - BS	EPA-6020	**94.5**			80	119	07/18/2017	RAL
Zinc - BSD	EPA-6020	**95.3**	**1**		80	119	07/18/2017	RAL

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CERTIFICATE OF ANALYSIS

APPROVED BY

Laboratory Director

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Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only): EV1707 0055

Date 7/17/17 Page 1 Of 1

PROJECT ID: 64001
REPORT TO COMPANY: EPI
PROJECT MANAGER: Sean Trimble
ADDRESS: 1180 NW Maple St.
Issaquah, WA 98027
PHONE: 425-395-0010 FAX:
P.O. #: E-MAIL: seant@epi-wa.com
INVOICE TO COMPANY: EPI
ATTENTION:
ADDRESS:

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA 8021 ☐ BTEX by EPA 8260 ☐	MTBE by EPA 8021 ☐ MTBE by EPA 8260 ☐	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA 8270 SIM	PCB by EPA 8082 ☐ Pesticides by EPA 8081 ☐	Metals-MTCA-5 ☐ RCRA-8 ☑ Pri Pol ☐ TAL ☐	Metals Other (Specify)	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	OTHER (Specify): Cu, Ni, Zn						NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. Drum: Soil-1	7/16/17	0930	Soil	1						X							X			X							4	
2. Drum: Soil-2	7/17/17	1045	Soil	2						X							X			X							4	
3.																												
4.																												
5.																												
6.																												
7.																												
8.																												
9.																												
10.																												

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: EPI, 7/17/17, 1250
   Received By: Trent Tollen, ALS, 7/17/17, 1250
2. Relinquished By:
   Received By:

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis: 10 (Standard) | 5 | 3 | (2) | 1 | SAME DAY

Fuels & Hydrocarbon Analysis: 5 (Standard) | 3 | 1 | SAME DAY

OTHER: Specify:

*Turnaround request less than standard may incur Rush Charges

September 21, 2017

Mr. Sean Trimble
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

Dear Mr. Trimble,

On September 19th, 1 sample was received by our laboratory and assigned our laboratory project number EV17090107. The project was identified as your 64001. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	9/21/2017 EV17090107 EV17090107-01
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	09/19/2017
CLIENT PROJECT:	64001	COLLECTION DATE:	9/18/2017 10:30:00 AM
CLIENT SAMPLE ID	NWC-1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-7471	**0.021**	0.020	1	MG/KG	09/19/2017	RAL
Arsenic	EPA-6020	**2.7**	1.5	5	MG/KG	09/19/2017	RAL
Barium	EPA-6020	**240**	0.50	5	MG/KG	09/19/2017	RAL
Cadmium	EPA-6020	**18**	0.50	5	MG/KG	09/19/2017	RAL
Chromium	EPA-6020	**42**	0.74	5	MG/KG	09/19/2017	RAL
Copper	EPA-6020	**38**	0.50	5	MG/KG	09/19/2017	RAL
Lead	EPA-6020	**5.3**	0.50	5	MG/KG	09/19/2017	RAL
Nickel	EPA-6020	**25**	0.88	5	MG/KG	09/19/2017	RAL
Selenium	EPA-6020	U	6.4	5	MG/KG	09/19/2017	RAL
Silver	EPA-6020	U	0.50	5	MG/KG	09/19/2017	RAL
Zinc	EPA-6020	**120**	5.0	5	MG/KG	09/19/2017	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
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Environmental www.alsglobal.com
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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE:	9/21/2017
		ALS SDG#:	EV17090107
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Sean Trimble		
CLIENT PROJECT:	64001		

LABORATORY BLANK RESULTS

MBLK-301898 - Batch R301898 - Soil by EPA-7471

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-7471	U	MG/KG	0.020	09/19/2017	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

MB-091917S - Batch 120193 - Soil by EPA-6020

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6020	U	MG/KG	0.20	09/19/2017	RAL
Barium	EPA-6020	U	MG/KG	0.10	09/19/2017	RAL
Cadmium	EPA-6020	U	MG/KG	0.10	09/19/2017	RAL
Chromium	EPA-6020	U	MG/KG	0.10	09/19/2017	RAL
Copper	EPA-6020	U	MG/KG	0.10	09/19/2017	RAL
Lead	EPA-6020	U	MG/KG	0.10	09/19/2017	RAL
Nickel	EPA-6020	U	MG/KG	0.10	09/19/2017	RAL
Selenium	EPA-6020	U	MG/KG	1.0	09/19/2017	RAL
Silver	EPA-6020	U	MG/KG	0.10	09/19/2017	RAL
Zinc	EPA-6020	U	MG/KG	0.50	09/19/2017	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

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ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

CLIENT CONTACT: Sean Trimble
CLIENT PROJECT: 64001

DATE: 9/21/2017
ALS SDG#: EV17090107
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: R301898 - Soil by EPA-7471

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Mercury - BS	EPA-7471	**111**			81.8	117	09/19/2017	RAL
Mercury - BSD	EPA-7471	**102**	**8**		81.8	117	09/19/2017	RAL

ALS Test Batch ID: 120193 - Soil by EPA-6020

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Arsenic - BS	EPA-6020	**93.2**			80	120	09/19/2017	RAL
Arsenic - BSD	EPA-6020	**99.6**	**7**		80	120	09/19/2017	RAL
Barium - BS	EPA-6020	**95.7**			80	120	09/19/2017	RAL
Barium - BSD	EPA-6020	**100**	**5**		80	120	09/19/2017	RAL
Cadmium - BS	EPA-6020	**95.0**			80	120	09/19/2017	RAL
Cadmium - BSD	EPA-6020	**100**	**5**		80	120	09/19/2017	RAL
Chromium - BS	EPA-6020	**95.8**			80	120	09/19/2017	RAL
Chromium - BSD	EPA-6020	**100**	**5**		80	120	09/19/2017	RAL
Copper - BS	EPA-6020	**96.4**			80	120	09/19/2017	RAL
Copper - BSD	EPA-6020	**102**	**5**		80	120	09/19/2017	RAL
Lead - BS	EPA-6020	**93.9**			80	120	09/19/2017	RAL
Lead - BSD	EPA-6020	**98.8**	**5**		80	120	09/19/2017	RAL
Nickel - BS	EPA-6020	**95.6**			80	120	09/19/2017	RAL
Nickel - BSD	EPA-6020	**99.1**	**4**		80	120	09/19/2017	RAL
Selenium - BS	EPA-6020	**92.8**			80	120	09/19/2017	RAL
Selenium - BSD	EPA-6020	**99.9**	**7**		80	120	09/19/2017	RAL
Silver - BS	EPA-6020	**96.4**			80	120	09/19/2017	RAL
Silver - BSD	EPA-6020	**103**	**6**		80	120	09/19/2017	RAL
Zinc - BS	EPA-6020	**92.4**			80	119	09/19/2017	RAL
Zinc - BSD	EPA-6020	**99.4**	**7**		80	119	09/19/2017	RAL

APPROVED BY

Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

Environmental www.alsglobal.com
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ALS Environmental
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Everett, WA 98208
Phone (425) 356-2600
Fax (425) 356-2626
http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only): EV1709010 7

Date 9/18/17 Page 1 Of 1

PROJECT ID: 64001
REPORT TO COMPANY: Environmental Partners Inc.
PROJECT MANAGER: Sean Trimble
ADDRESS: 1180 NW Maple St.
Issaquah, WA 98027
PHONE: 425-395-0010 FAX:
P.O. #: E-MAIL:
INVOICE TO COMPANY:
ATTENTION:
ADDRESS:

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA 8021 ☐ BTEX by EPA 8260 ☐	MTBE by EPA 8021 ☐ MTBE by EPA 8260 ☐	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	SemiVolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA 8270 SIM	PCB by EPA 8082 ☐ Pesticides by EPA 8081 ☐	Metals-MTCA-6 ☐ RCRA-8 ☑ Pri Pol ☐ TAL ☐	Metals Other (Specify) Cu, Ni, Zn	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. NWC-1	9/18/17	1030	Concrete	1													X	X		1	
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

OTHER (Specify)

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: EPI, 9/18/17,
   Received By: Trent Tollen, ALS, 9/19/17, 0945
2. Relinquished By:
   Received By:

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis: (10) Standard | 5 | 3 | 2 | 1 | SAME DAY

Fuels & Hydrocarbon Analysis: (5) Standard | 3 | 1 | SAME DAY

OTHER:
Specify:

October 18, 2017

Mr. Sean Trimble
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

Dear Mr. Trimble,

On October 12th, 1 sample was received by our laboratory and assigned our laboratory project number EV17100074. The project was identified as your 64001. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

Environmental www.alsglobal.com
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ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	10/18/2017 EV17100074 EV17100074-01
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	10/12/2017
CLIENT PROJECT:	64001	COLLECTION DATE:	9/18/2017 10:30:00 AM
CLIENT SAMPLE ID	NWC-1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-7471	**0.021**	0.020	1	MG/KG	10/13/2017	RAL
Arsenic	EPA-6020	**6.1**	1.0	5	MG/KG	10/13/2017	RAL
Barium	EPA-6020	**300**	0.50	5	MG/KG	10/13/2017	RAL
Cadmium	EPA-6020	**3.2**	0.50	5	MG/KG	10/13/2017	RAL
Chromium	EPA-6020	**36**	0.50	5	MG/KG	10/13/2017	RAL
Copper	EPA-6020	**69**	0.50	5	MG/KG	10/13/2017	RAL
Lead	EPA-6020	**9.0**	0.50	5	MG/KG	10/13/2017	RAL
Nickel	EPA-6020	**21**	0.50	5	MG/KG	10/13/2017	RAL
Selenium	EPA-6020	U	5.0	5	MG/KG	10/13/2017	RAL
Silver	EPA-6020	U	0.50	5	MG/KG	10/13/2017	RAL
Zinc	EPA-6020	**190**	2.5	5	MG/KG	10/13/2017	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE:	10/18/2017
		ALS SDG#:	EV17100074
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Sean Trimble		
CLIENT PROJECT:	64001		

LABORATORY BLANK RESULTS

MBLK-303646 - Batch R303646 - Soil by EPA-7471

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-7471	U	MG/KG	0.020	10/13/2017	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

MB-101317S - Batch 120985 - Soil by EPA-6020

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6020	U	MG/KG	0.20	10/13/2017	RAL
Barium	EPA-6020	U	MG/KG	0.10	10/13/2017	RAL
Cadmium	EPA-6020	U	MG/KG	0.10	10/13/2017	RAL
Chromium	EPA-6020	U	MG/KG	0.10	10/13/2017	RAL
Copper	EPA-6020	U	MG/KG	0.10	10/13/2017	RAL
Lead	EPA-6020	U	MG/KG	0.10	10/13/2017	RAL
Nickel	EPA-6020	U	MG/KG	0.10	10/13/2017	RAL
Selenium	EPA-6020	U	MG/KG	1.0	10/13/2017	RAL
Silver	EPA-6020	U	MG/KG	0.10	10/13/2017	RAL
Zinc	EPA-6020	U	MG/KG	0.50	10/13/2017	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
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CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

CLIENT CONTACT: Sean Trimble
CLIENT PROJECT: 64001

DATE: 10/18/2017
ALS SDG#: EV17100074
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: R303646 - Soil by EPA-7471

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Mercury - BS	EPA-7471	**106**			81.8	117	10/13/2017	RAL
Mercury - BSD	EPA-7471	**102**	**4**		81.8	117	10/13/2017	RAL

ALS Test Batch ID: 120985 - Soil by EPA-6020

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Arsenic - BS	EPA-6020	**93.9**			80	120	10/13/2017	RAL
Arsenic - BSD	EPA-6020	**94.6**	**1**		80	120	10/13/2017	RAL
Barium - BS	EPA-6020	**95.0**			80	120	10/13/2017	RAL
Barium - BSD	EPA-6020	**95.9**	**1**		80	120	10/13/2017	RAL
Cadmium - BS	EPA-6020	**96.4**			80	120	10/13/2017	RAL
Cadmium - BSD	EPA-6020	**96.5**	**0**		80	120	10/13/2017	RAL
Chromium - BS	EPA-6020	**96.6**			80	120	10/13/2017	RAL
Chromium - BSD	EPA-6020	**97.0**	**0**		80	120	10/13/2017	RAL
Copper - BS	EPA-6020	**96.2**			80	120	10/13/2017	RAL
Copper - BSD	EPA-6020	**97.4**	**1**		80	120	10/13/2017	RAL
Lead - BS	EPA-6020	**93.6**			80	120	10/13/2017	RAL
Lead - BSD	EPA-6020	**94.0**	**0**		80	120	10/13/2017	RAL
Nickel - BS	EPA-6020	**94.9**			80	120	10/13/2017	RAL
Nickel - BSD	EPA-6020	**95.8**	**1**		80	120	10/13/2017	RAL
Selenium - BS	EPA-6020	**94.7**			80	120	10/13/2017	RAL
Selenium - BSD	EPA-6020	**94.5**	**0**		80	120	10/13/2017	RAL
Silver - BS	EPA-6020	**96.0**			80	120	10/13/2017	RAL
Silver - BSD	EPA-6020	**97.5**	**2**		80	120	10/13/2017	RAL
Zinc - BS	EPA-6020	**92.1**			80	119	10/13/2017	RAL
Zinc - BSD	EPA-6020	**93.4**	**1**		80	119	10/13/2017	RAL

APPROVED BY

Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

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ALS Environmental
8620 Holly Drive, Suite 100
Everett, WA 98208
Phone (425) 356-2600
Fax (425) 356-2626
http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

EV1710007 4

ALS Job# (Laboratory Use Only)
~~EV1709010 7~~

Date 9/18/17 Page 1 Of 1

PROJECT ID: 64001
REPORT TO COMPANY: Environmental Partners Inc.
PROJECT MANAGER: Sean Trimble
ADDRESS: 1180 NW Maple St.
Issaquah, WA 98027
PHONE: 425-395-0010 FAX:
P.O. #: E-MAIL:
INVOICE TO COMPANY:
ATTENTION:
ADDRESS:

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA 8021 ☐ BTEX by EPA 8260 ☐	MTBE by EPA 8021 ☐ MTBE by EPA 8260 ☐	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA 8270 SIM	PCB by EPA 8082 ☐ Pesticides by EPA 8081 ☐	Metals-MTCA-5 ☐ RCRA-8 ☐ Pri Pol ☐ TAL ☐	Metals Other (Specify) Cu, Ni, Zn	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	OTHER (Specify)	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. NWC-1	9/18/17	1030	Concrete	1													X	X			1	
2.																						
3.																						
4.																						
5.																						
6.																						
7.																						
8.																						
9.																						
10.																						

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: EPI, 9/18/17
   Received By: Trent Tollen, ALS, 9/19/17, 0945
2. Relinquished By:
   Received By:

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis: (10) Standard | 5 | 3 | 2 | 1 | SAME DAY

Fuels & Hydrocarbon Analysis: (5) Standard | 3 | 1 | SAME DAY

OTHER:
Specify:

November 7, 2017

Mr. Sean Trimble
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

Dear Mr. Trimble,

On November 1st, 1 sample was received by our laboratory and assigned our laboratory project number EV17110007. The project was identified as your 64001. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

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CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE: ALS JOB#: ALS SAMPLE#:	11/7/2017 EV17110007 EV17110007-01
CLIENT CONTACT:	Sean Trimble	DATE RECEIVED:	11/01/2017
CLIENT PROJECT:	64001	COLLECTION DATE:	10/31/2017 6:30:00 AM
CLIENT SAMPLE ID	NWC-2	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-7471	U	0.020	1	MG/KG	11/06/2017	RAL
Arsenic	EPA-6020	**5.4**	1.0	5	MG/KG	11/06/2017	RAL
Barium	EPA-6020	**220**	0.50	5	MG/KG	11/06/2017	RAL
Cadmium	EPA-6020	U	0.50	5	MG/KG	11/06/2017	RAL
Chromium	EPA-6020	**30**	0.50	5	MG/KG	11/06/2017	RAL
Copper	EPA-6020	**52**	0.50	5	MG/KG	11/06/2017	RAL
Lead	EPA-6020	**5.7**	0.50	5	MG/KG	11/06/2017	RAL
Nickel	EPA-6020	**26**	0.50	5	MG/KG	11/06/2017	RAL
Selenium	EPA-6020	U	5.0	5	MG/KG	11/06/2017	RAL
Silver	EPA-6020	U	0.50	5	MG/KG	11/06/2017	RAL
Zinc	EPA-6020	**110**	2.6	5	MG/KG	11/06/2017	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027	DATE:	11/7/2017
		ALS SDG#:	EV17110007
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Sean Trimble		
CLIENT PROJECT:	64001		

LABORATORY BLANK RESULTS

MBLK-304970 - Batch R304970 - Soil by EPA-7471

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-7471	U	MG/KG	0.020	11/06/2017	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

MB-110617S - Batch 121834 - Soil by EPA-6020

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6020	U	MG/KG	0.20	11/06/2017	RAL
Barium	EPA-6020	U	MG/KG	0.10	11/06/2017	RAL
Cadmium	EPA-6020	U	MG/KG	0.10	11/06/2017	RAL
Chromium	EPA-6020	U	MG/KG	0.10	11/06/2017	RAL
Copper	EPA-6020	U	MG/KG	0.10	11/06/2017	RAL
Lead	EPA-6020	U	MG/KG	0.10	11/06/2017	RAL
Nickel	EPA-6020	U	MG/KG	0.10	11/06/2017	RAL
Selenium	EPA-6020	U	MG/KG	1.0	11/06/2017	RAL
Silver	EPA-6020	U	MG/KG	0.10	11/06/2017	RAL
Zinc	EPA-6020	U	MG/KG	0.50	11/06/2017	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

CERTIFICATE OF ANALYSIS

CLIENT: Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027
CLIENT CONTACT: Sean Trimble
CLIENT PROJECT: 64001

DATE: 11/7/2017
ALS SDG#: EV17110007
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: R304970 - Soil by EPA-7471

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Mercury - BS	EPA-7471	**104**			81.8	117	11/06/2017	RAL
Mercury - BSD	EPA-7471	**103**	**1**		81.8	117	11/06/2017	RAL

ALS Test Batch ID: 121834 - Soil by EPA-6020

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Arsenic - BS	EPA-6020	**106**			80	120	11/06/2017	RAL
Arsenic - BSD	EPA-6020	**110**	**3**		80	120	11/06/2017	RAL
Barium - BS	EPA-6020	**103**			80	120	11/06/2017	RAL
Barium - BSD	EPA-6020	**109**	**5**		80	120	11/06/2017	RAL
Cadmium - BS	EPA-6020	**102**			80	120	11/06/2017	RAL
Cadmium - BSD	EPA-6020	**111**	**8**		80	120	11/06/2017	RAL
Chromium - BS	EPA-6020	**105**			80	120	11/06/2017	RAL
Chromium - BSD	EPA-6020	**110**	**5**		80	120	11/06/2017	RAL
Copper - BS	EPA-6020	**107**			80	120	11/06/2017	RAL
Copper - BSD	EPA-6020	**110**	**3**		80	120	11/06/2017	RAL
Lead - BS	EPA-6020	**104**			80	120	11/06/2017	RAL
Lead - BSD	EPA-6020	**111**	**7**		80	120	11/06/2017	RAL
Nickel - BS	EPA-6020	**104**			80	120	11/06/2017	RAL
Nickel - BSD	EPA-6020	**108**	**4**		80	120	11/06/2017	RAL
Selenium - BS	EPA-6020	**108**			80	120	11/06/2017	RAL
Selenium - BSD	EPA-6020	**111**	**2**		80	120	11/06/2017	RAL
Silver - BS	EPA-6020	**109**			80	120	11/06/2017	RAL
Silver - BSD	EPA-6020	**114**	**4**		80	120	11/06/2017	RAL
Zinc - BS	EPA-6020	**109**			80	119	11/06/2017	RAL
Zinc - BSD	EPA-6020	**109**	**0**		80	119	11/06/2017	RAL

APPROVED BY

Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

ALS Environmental
8620 Holly Drive, Suite 100
Everett, WA 98208
Phone (425) 356-2600
Fax (425) 356-2626
http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only): EV1711007

Date 11/1/17 Page 1 Of 1

PROJECT ID: 64001
REPORT TO COMPANY: EPI
PROJECT MANAGER: Sean Trimble
ADDRESS: 1180 NW Maple St.
Issaquah, WA 98027
PHONE: 425.395-0010 FAX:
P.O. #: E-MAIL: sean@epi-wa.com
INVOICE TO COMPANY: EPI
ATTENTION:
ADDRESS:

5

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA 8021 ☐ BTEX by EPA 8260 ☐	MTBE by EPA 8021 ☐ MTBE by EPA 8260 ☐	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA 8270 SIM	PCB by EPA 8082 ☐ Pesticides by EPA 8081 ☐	Metals-MTCA-5 ☐ RCRA-8 ☑ Pri Pol ☐ TAL ☐	Metals Other (Specify) Cu, Ni, Zn	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	OTHER (Specify)	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. NWC-2	10/31/17	0630	Concrete	1													X	X			1	
2.																						
3.																						
4.																						
5.																						
6.																						
7.																						
8.																						
9.																						
10.																			–			

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: EPI 11/1/17 0215 PM
   Received By: Trent Tollen, ALS, 11/1/17, 0215 PM
2. Relinquished By:
   Received By:

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis: (10 Standard) 5 3 2 1 SAME DAY

Fuels & Hydrocarbon Analysis: (5 Standard) 3 1 SAME DAY

OTHER:
Specify:

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 21, 2017

Sean Trimble, Project Manager
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

RE: 64001

Dear Mr Trimble:

Included are the results from the testing of material submitted on November 15, 2017 from the 64001, F&BI 711311 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Cynthia Moon
EPI1121R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 15, 2017 by Friedman & Bruya, Inc. from the Environmental Partners 64001 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Environmental Partners
711311 -01	Stockpile-1

All quality control requirements were acceptable.

Analysis For Total Metals By EPA Method 6020A

Client ID:	Stockpile-1	Client:	Environmental Partners
Date Received:	11/15/17	Project:	64001, F&BI 711311
Date Extracted:	11/16/17	Lab ID:	711311-01
Date Analyzed:	11/16/17	Data File:	711311-01.085
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	5.32
Barium	131
Cadmium	67.3
Chromium	44.6
Copper	90.2
Lead	256 ve
Mercury	<1
Nickel	51.2
Selenium	<1
Silver	<1
Zinc	301

Analysis For Total Metals By EPA Method 6020A

Client ID:	Stockpile-1	Client:	Environmental Partners
Date Received:	11/15/17	Project:	64001, F&BI 711311
Date Extracted:	11/16/17	Lab ID:	711311-01 x5
Date Analyzed:	11/17/17	Data File:	711311-01 x5.034
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	306

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	64001, F&BI 711311
Date Extracted:	11/16/17	Lab ID:	I7-647 mb
Date Analyzed:	11/17/17	Data File:	I7-647 mb.032
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Mercury	<1
Nickel	<1
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Stockpile-1	Client:	Environmental Partners
Date Received:	11/15/17	Project:	64001, F&BI 711311
Date Extracted:	11/16/17	Lab ID:	711311-01
Date Analyzed:	11/16/17	Data File:	111606.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	106	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.065
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	0.20	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	64001, F&BI 711311
Date Extracted:	11/16/17	Lab ID:	07-2579 mb2
Date Analyzed:	11/16/17	Data File:	111605.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	102	55	145
4-Bromofluorobenzene	105	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 11/21/17
Date Received: 11/15/17
Project: 64001, F&BI 711311

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 6020A

Laboratory Code: 711311-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	5.13	103	96	75-125	7
Barium	mg/kg (ppm)	50	117	102 b	71 b	75-125	36 b
Cadmium	mg/kg (ppm)	10	65.1	80 b	135 b	75-125	51 b
Chromium	mg/kg (ppm)	50	42.7	88	83	75-125	6
Copper	mg/kg (ppm)	50	87.9	122 b	45 b	75-125	92 b
Lead	mg/kg (ppm)	50	263	27 b	85 b	75-125	104 b
Mercury	mg/kg (ppm	5	<5	89	91	75-125	2
Nickel	mg/kg (ppm)	25	52.8	120 b	92 b	75-125	26 b
Selenium	mg/kg (ppm)	5	<5	97	92	75-125	5
Silver	mg/kg (ppm)	10	<5	94	93	75-125	1
Zinc	mg/kg (ppm)	50	320	0 b	0 b	75-125	0 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	115	80-120
Barium	mg/kg (ppm)	50	106	80-120
Cadmium	mg/kg (ppm)	10	109	80-120
Chromium	mg/kg (ppm)	50	111	80-120
Copper	mg/kg (ppm)	50	110	80-120
Lead	mg/kg (ppm)	50	112	80-120
Mercury	mg/kg (ppm)	5	109	80-120
Nickel	mg/kg (ppm)	25	112	80-120
Selenium	mg/kg (ppm)	5	104	80-120
Silver	mg/kg (ppm)	10	103	80-120
Zinc	mg/kg (ppm)	50	107	80-120

Date of Report: 11/21/17
Date Received: 11/15/17
Project: 64001, F&BI 711311

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 711311-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	21	21	10-142	0
Chloromethane	mg/kg (ppm)	2.5	<0.5	47	45	10-126	4
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	49	48	10-138	2
Bromomethane	mg/kg (ppm)	2.5	<0.5	50	51	10-163	2
Chloroethane	mg/kg (ppm)	2.5	<0.5	54	52	10-176	4
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	56	54	10-176	4
Acetone	mg/kg (ppm)	12.5	<0.5	81	75	10-163	8
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	65	61	10-160	6
Hexane	mg/kg (ppm)	2.5	<0.25	60	56	10-137	7
Methylene chloride	mg/kg (ppm)	2.5	<0.5	77	74	10-156	4
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	76	74	21-145	3
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	72	69	14-137	4
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	74	71	19-140	4
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	107	103	10-158	4
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	77	74	25-135	4
Chloroform	mg/kg (ppm)	2.5	<0.05	76	73	21-145	4
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	84	85	19-147	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	77	75	12-160	3
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	86	82	10-156	5
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	77	74	17-140	4
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	94	89	9-164	5
Benzene	mg/kg (ppm)	2.5	<0.03	76	74	29-129	3
Trichloroethene	mg/kg (ppm)	2.5	0.17	74	72	21-139	3
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	83	83	30-135	0
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	86	83	23-155	4
Dibromomethane	mg/kg (ppm)	2.5	<0.05	81	80	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	92	91	24-155	1
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	90	89	28-144	1
Toluene	mg/kg (ppm)	2.5	<0.05	80	78	35-130	3
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	96	94	26-149	2
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	84	83	10-205	1
2-Hexanone	mg/kg (ppm)	12.5	<0.5	91	92	15-166	1
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	83	83	31-137	0
Tetrachloroethene	mg/kg (ppm)	2.5	0.056	82	80	20-133	2
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	93	91	28-150	2
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	91	92	28-142	1
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	81	80	32-129	1
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	82	80	32-137	2
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	93	90	31-143	3
m,p-Xylene	mg/kg (ppm)	5	<0.1	82	80	34-136	2
o-Xylene	mg/kg (ppm)	2.5	<0.05	79	78	33-134	1
Styrene	mg/kg (ppm)	2.5	<0.05	82	81	35-137	1
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	81	79	31-142	2
Bromoform	mg/kg (ppm)	2.5	<0.05	97	95	21-156	2
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	86	84	23-146	2
Bromobenzene	mg/kg (ppm)	2.5	<0.05	87	85	34-130	2
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	84	82	18-149	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	88	85	28-140	3
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	84	83	25-144	1
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	84	82	31-134	2
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	84	82	31-136	2
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	85	83	30-137	2
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	84	81	10-182	4
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	85	84	23-145	1
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	86	83	21-149	4
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	84	82	30-131	2
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	85	82	29-129	4
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	85	82	31-132	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	101	97	11-161	4
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	87	84	22-142	4
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	94	93	10-142	1
Naphthalene	mg/kg (ppm)	2.5	<0.05	82	81	14-157	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	86	84	20-144	2

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	72	10-146
Chloromethane	mg/kg (ppm)	2.5	71	27-133
Vinyl chloride	mg/kg (ppm)	2.5	79	22-139
Bromomethane	mg/kg (ppm)	2.5	73	38-114
Chloroethane	mg/kg (ppm)	2.5	75	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	83	10-196
Acetone	mg/kg (ppm)	12.5	91	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	86	47-128
Hexane	mg/kg (ppm)	2.5	92	43-142
Methylene chloride	mg/kg (ppm)	2.5	94	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	89	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	90	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	89	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	122	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	91	72-113
Chloroform	mg/kg (ppm)	2.5	88	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	100	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	91	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	103	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	93	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	112	60-139
Benzene	mg/kg (ppm)	2.5	90	68-114
Trichloroethene	mg/kg (ppm)	2.5	91	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	96	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	100	72-130
Dibromomethane	mg/kg (ppm)	2.5	95	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	103	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	108	75-136
Toluene	mg/kg (ppm)	2.5	93	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	115	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	97	75-113
2-Hexanone	mg/kg (ppm)	12.5	101	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	96	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	100	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	114	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	108	74-132
Chlorobenzene	mg/kg (ppm)	2.5	94	76-111
Ethylbenzene	mg/kg (ppm)	2.5	95	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	109	69-135
m,p-Xylene	mg/kg (ppm)	5	96	78-122
o-Xylene	mg/kg (ppm)	2.5	93	77-124
Styrene	mg/kg (ppm)	2.5	95	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	94	76-127
Bromoform	mg/kg (ppm)	2.5	121	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	97	74-124
Bromobenzene	mg/kg (ppm)	2.5	98	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	95	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	97	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	93	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	95	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	95	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	96	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	95	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	96	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	97	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	96	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	96	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	96	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	116	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	100	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	107	50-153
Naphthalene	mg/kg (ppm)	2.5	97	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	99	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

7/1311

SAMPLE CHAIN OF CUSTODY

ME 11-15-17

VSY / AI

Page # 1 of 1

Send Report To Sean Trimble

Company EPI

Address 1180 NW Maple St.

City, State, ZIP Issaquah, WA

Phone # 425-395-0010 Fax #

Email Address

SAMPLERS

PROJECT NAME/NO. 6400l

PO #

PROJECT ADDRESS

• ELECTRONIC DATA REQUESTED

TURNAROUND TIME
• Standard Turnaround
• RUSH 48 hour turn
Rush charges authorized by:

SAMPLE DISPOSAL
• Dispose after 30 days
• Return samples
• Will call with instructions

Samples Received at ____ °C

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	VOCs	RCRA-8 Metals	Cu, Pb, Zn			Notes
Stockpile-1	01 A-B	11/14/17	1130	Soil	5							X	X	X			

Samples received at 4 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Joe Sherrod	EPI	11/15/17	0430 PM
Received by:			4	4:40
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

Attachment E
Waste Disposal Documents

448210

CWMI

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
WAD000244864	1	(800)424-9300	016204547 JJK

GENERATOR

5. Generator's Name and Mailing Address
NORTHWEST PLATING
825 S DAKOTA ST
SEATTLE WA 98108
Generator's Phone: (206)682-3050

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name
R TRANSPORT

U.S. EPA ID Number
WAH000078338

7. Transporter 2 Company Name
UNION PACIFIC RAIL ROAD

U.S. EPA ID Number
NED0102010

8. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT, INC.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812-9709
(503)454-2643
Facility's Phone:

U.S. EPA ID Number
ORD088452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. RQ, NA3077, HAZARDOUS WASTE SOLID, N.O.S., 9, III (CADMIUM, CHROMIUM)	001	CM	35000 P 26900	P	D006 D007
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.OR31538- RCRA REGULATED CONCRETE DEBRIS; ERG #171
E/R/P= CHEMTREC (#CCN24117) CONTAINER # WMXU 8822
26900 P

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name	Signature	Month	Day	Year
On behalf of N.W. Plating Brian Johnson		8	2	16

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name	Signature	Month	Day	Year
PETE VANDERENDE	P Vanderende	08	02	16
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year
Jacob Tanwenthe		8	2	16

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☑ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Quantity changed per scott St. John/DHF
Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name	Signature	Month	Day	Year
Patti Brandt	Patti Brandt	08	08	16

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR STATE (IF REQUIRED)

S/15

44E231

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
WAD009244864	1	800 337 7455	015121308 JJK

GENERATOR

5. Generator's Name and Mailing Address
Att: John Drake
Northwest Plating
17742 Talbot RD
Edmonds WA 98026
Generator's Phone: 206 501 5545

Generator Site Address (if different than mailing address)
Northwest Plating
825 S Dakota Street
Seattle WA 98108

6. Transporter 1 Company Name: DH Environmental Inc
U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name: Chemical Waste Management
U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT, INC
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812
Facility's Phone: 541 454-2643
U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3082, Hazardous waste, liquid, n.o.s. (Trichloroethylene, Tetrachloroethylene), 9, PGIII	01	DM	450	P	F002
X	2. NA3077, Hazardous waste, solid, n.o.s. (Trichloroethylene, Tetrachloroethylene), 9, PGIII	08	DM	6,400	P	F002
X	3. ~~NA3077, Hazardous waste, solid, n.o.s. (Trichloroethylene Cresolum), 9, PGIII~~		DM			~~F002~~ ~~D007~~
	4.					

14. Special Handling Instructions and Additional Information
1)(T) OR330545 ERG#171 2)(T) OR330544 ERG#171 3)(E,T) OR330546 ERG#171
WAXU 980622

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Scott St. John ON BEHALF OF NW PLATING | Signature | Month 07 | Day 25 | Year 16

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Travis Forslund | Signature | Month 7 | Day 25 | Year 16

Transporter 2 Printed/Typed Name: Leonard J. Warnock | Signature | Month 07 | Day 25 | Year 16

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) | U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) | Month | Day | Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132	H132	H132	

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Dana West | Signature | Month 8 | Day 11 | Year 16

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

447373

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WAD009241864
2. Page 1 of: 1
3. Emergency Response Phone: 800 337-7455
4. Manifest Tracking Number: 015121212 JJK

GENERATOR

5. Generator's Name and Mailing Address: NORTHWEST PLATING, 1742 TALBOT ROAD, EDMONDS, WA 98026
Generator's Site Address (if different than mailing address): 825 S DAKOTA STREET, SEATTLE, WA 98108
Generator's Phone: 206-501-5545

6. Transporter 1 Company Name: ~~DH ENVIRONMENTAL INC~~ CHEMICAL WASTE MANAGEMENT
U.S. EPA ID Number: ~~WAH000047217~~ ORD089452353

7. Transporter 2 Company Name: R TRANSPORT INC
U.S. EPA ID Number: WAH000002838

8. Designated Facility Name and Site Address: CHEMICAL WASTE MANAGEMENT, 17629 CEDAR SPRINGS LANE, ARLINGTON, OR 97812
U.S. EPA ID Number: ORD089452353
Facility's Phone: 541-454-2243

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. MATERIAL NOT REGULATED BY DOT (WA STATE TOXIC ONLY)	01	CM	12,000	P	WT02
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
PROFILE # OR331106
WMXU 8630

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: SCOTT ST. JOHN ON BEHALF OF NORTHWEST PLATING
Signature:
Month: 06 Day: 09 Year: 16

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: PETE VANDERENDE
Signature:
Month: 06 Day: 09 Year: 16

Transporter 2 Printed/Typed Name: CHRISTOPHER RABBITO
Signature:
Month: 06 Day: 09 Year: 16

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Lara West
Signature:
Month: 6 Day: 15 Year: 16

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

INVOICE

DATE: July 31, 2017
INVOICE: 5968

Supplier # 113620
Fed. ID # 57-1160277
WA UBI# 602 284 251
WA CLB# DHENVEI871NB

BILL TO:
Sean Trimble, PG, LG
Senior Geologist
Enivronmental Partners, Inc
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

REMIT TO:
DH Environmental, Inc.
1011 SW Klickitat Way
Suite 107
Seattle, WA 98134
Contact: Scott St. John at (206) 327-0026 or scottstjohn@dhenviro.com

Project Reference: IDW Transportation and Disposal - Washington Industries Site

DESCRIPTION	Qty	Unit	Rate	Amount
Project Location: 825 S Dakota Street, Seattle, WA 98106 **Dates of Service: July 28, 2017** **Waste profiling, preparation of shipping documents, transportation and disposal of investigation derived waste.**				
Transportation: Includes labor, equipment and materials	19	55 gallon DM	$ 60.00	$ **1,140.00**
Disposal: F-Listed Hazardous Soil meeting LDRs - Direct Landfill	13	55 gallon DM	$ 180.00	$ **2,340.00**
Disposal: F-Listed Hazardous Liquids meeting LDRs- Solidification/Landfill	6	55 gallon DM	$ 180.00	$ **1,080.00**
Project Management - Profiles, Manifest & Labels	2	Hour	$ 98.00	$ **196.00**

Thank you for your business	**INVOICE SUBTOTAL**	$ **4,756.00**
	Sales Tax	$ -
Payment Terms: Net 30 Days.	**TOTAL INVOICE**	$ **4,756.00**
		Please pay this amount

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
WAD009244864	1	800.337.7455	017543069 JJK

GENERATOR

5. Generator's Name and Mailing Address
Att: John Drake
Northwest Plating
17742 Talbot RD
Edmonds WA 98026
Generator's Phone: 206 501 5545

Generator's Site Address (if different than mailing address)
Northwest Plating
825 S Dakota Street
Seattle WA 98108

6. Transporter 1 Company Name: DH Environmental Inc. — U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name: Chemical Waste Management — U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT, INC
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812
Facility's Phone: 541 454-2643
U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. NA3082, Hazardous waste, liquid, n.o.s. (Trichloroethene Chromium), 9, PGIII	~~004~~ 6	DM	~~2150~~ 1800	P	F002	D007	
X	2. NA3077, Hazardous waste, solid, n.o.s. (Trichloroethene, Chromium), 9, PGIII	~~012~~ 13	DM	~~4800~~ 5200	P	F002	D007	
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1(E,T) OR331800 ERG#171 2(E,T) OR334810 ERG#171

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Al Lepatang — Signature — Month: 7 Day: 28 Year: 17

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Al Lepatang — Signature — Month: 7 Day: 28 Year: 17

Transporter 2 Printed/Typed Name: Leonard J. Warnock — Signature — Month: 07 Day: 28 Year: 17

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name — Signature — Month: Day: Year:

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

INVOICE

DATE: December 31, 2017
INVOICE: 6213

Supplier # 113620
Fed. ID # 57-1160277
WA UBI# 602 284 251
WA CLB# DHENVEI871NB

BILL TO:
Sean Trimble, PG, LG
Senior Geologist
Enivronmental Partners, Inc
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

REMIT TO:
DH Environmental, Inc.
1011 SW Klickitat Way
Suite 107
Seattle, WA 98134
Contact: Scott St. John at (206) 327-0026 or scottstjohn@dhenviro.com

Project Reference: IDW Transportation and Disposal - Washington Industries Site

DESCRIPTION	Qty	Unit	Rate	Amount
Project Location: 825 S Dakota Street, Seattle, WA 98106 **Dates of Service: December 14, 2017** **Waste profiling, preparation of shipping documents, transportation and disposal of investigation derived waste.**				
Labor, Equipment and Materials to Load Container	1	Each	$ 2,200.00	$ **2,200.00**
Transportation: Roll-off Delivery and Trans to Rail	2	Each	$ 400.00	$ **800.00**
Transportation: Roll-off Delivery to CWM (17 Tons/Roll-off)	1	Each	$ 950.00	$ **950.00**
RCRA Regulated Soil & Debris Disposal Fee at CWM in Arlington, OR	5.26	Tons	$ 295.00	$ **1,551.70**
Roll-off Liners	1	Each	$ 100.00	$ **100.00**

Thank you for your business	**INVOICE SUBTOTAL**	$ **5,601.70**
	Sales Tax	$ -
Payment Terms: Net 30 Days.	**TOTAL INVOICE**	$ **5,601.70**
		Please pay this amount

458811

Please print or type (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WAD009244864
2. Page 1 of: 1
3. Emergency Response Phone: 800.337.7455
4. Manifest Tracking Number: 017543178 JJK

GENERATOR

5. Generator's Name and Mailing Address
Northwest Plating
17742 Talbot RD
Edmonds WA 98026
Att: John Drake
Generator's Phone: 206 501.5545

Generator's Site Address (if different than mailing address)
Northwest Plating
825 S Dakota Street
Seattle WA 98108

6. Transporter 1 Company Name: Chemical Waste Management
U.S. EPA ID Number: ORD089452353

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT, INC
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812
Facility's Phone: 541 454-2643
U.S. EPA ID Number: ORD089452353

9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1 ~~NA3082, Hazardous Waste, liquid, n.o.s. (Trichloroethene Chromium), 9, PGIII~~					~~F002 D006~~
	2 NA3077 Hazardous waste Solid n.o.s (Trichloroethene, Chromium) 9 PGIII	1	RO	~~12,000~~ 10520	P mb	F002 D006
	3					
	4					

14. Special Handling Instructions and Additional Information
1)(E.T) OR336084 ERG#171
10520P
WMXH86062

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Scott St. John ON BEHALF OF NW PLATERS
Signature
Month 12 Day 14 Year 17

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: PETE VANDEPENDE
Signature
Month 12 Day 15 Year 17

Transporter 2 Printed/Typed Name: Eric Kirwan
Signature
Month 12 Day 15 Year 17

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Section 19 & 20 missing. Approval to add per Scott St. John/ DH Environmental MB 12-28-17
Approval to change weight.
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H132 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Dawn Dunlap
Signature
Month 12 Day 19 Year 17

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

458811

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: WAD009244864

22. Page: 2/2

23. Manifest Tracking Number: 017543178 JJK

24. Generator's Name: Northwest Plating

25. Transporter 3 Company Name: CRLRE — U.S. EPA ID Number: ORD987173457

26. Transporter _____ Company Name — U.S. EPA ID Number:

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

GENERATOR

32. Special Handling Instructions and Additional Information

WMX48662

TRANSPORTER

33. Transporter 3 Acknowledgment of Receipt of Materials
Printed/Typed Name: Bonnie Shaw — Signature: B Shaw — Month: 12 Day: 16 Year: 17

34. Transporter _____ Acknowledgment of Receipt of Materials
Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Chemical Waste Management Of The Northwest

17629 Cedar Springs Lane
Arlington, Oregon 97812
541-454-2643
EPA I.D.# ORDO89452353

LOAD NO. Su -4B

MANIFEST DOC. NO. _____

INBOUND
T/D: 10:13:13 2017-12-26
ID: 458811 TRK ID: 8662
58360 lb G

OUTBOUND
T/D: 10:23:46 2017-12-26
ID: 458811 TRK ID: 8662
58360 lb G
47840 lb PT
10520 lb N

NET 5.26 TONS

GENERATOR _____

903-ARLINGTON_OR

Attachment F
Laboratory Analytical Data – System Vapor Samples

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1705011

May 03, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 5/1/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

CC:
Cynthia Moon

Date: *05/03/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1705011

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1705011-001	AIR-INF	05/01/2017 12:00 AM	05/01/2017 3:20 PM

Case Narrative

WO#: **1705011**
Date: **5/3/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1705011**
Date Reported: **5/3/2017**

Client: Environmental Partners, Inc. **Collection Date:** 5/1/2017
Project: WA Industries
Lab ID: 1705011-001 **Matrix:** Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R35878		Analyst: MW
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Chloromethane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/2/2017 12:03:35 PM
Bromomethane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Chloroethane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Methylene chloride	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
trans-1,2-Dichloroethene	0.186	0.100		µg/L	1	5/2/2017 12:03:35 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/2/2017 12:03:35 PM
cis-1,2-Dichloroethene	8.54	5.00	D	µg/L	50	5/2/2017 1:35:45 PM
Chloroform	0.316	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Benzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Trichloroethene (TCE)	192	5.00	D	µg/L	50	5/2/2017 1:35:45 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Dibromomethane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Toluene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Tetrachloroethene (PCE)	8.00	5.00	D	µg/L	50	5/2/2017 1:35:45 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/2/2017 12:03:35 PM
Chlorobenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Ethylbenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
m,p-Xylene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
o-Xylene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Styrene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Bromoform	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM

Analytical Report

Work Order: **1705011**
Date Reported: **5/3/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/1/2017
Project: WA Industries
Lab ID: 1705011-001
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R35878		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Bromobenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/2/2017 12:03:35 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/2/2017 12:03:35 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/2/2017 12:03:35 PM
Naphthalene	0.184	0.100		µg/L	1	5/2/2017 12:03:35 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/2/2017 12:03:35 PM
Surr: Dibromofluoromethane	94.3	61.1-128		%Rec	1	5/2/2017 12:03:35 PM
Surr: Toluene-d8	113	66-138		%Rec	1	5/2/2017 12:03:35 PM
Surr: 1-Bromo-4-fluorobenzene	85.1	64.7-128		%Rec	1	5/2/2017 12:03:35 PM

Work Order: 1705011
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R35878** SampType: **LCS** Units: **µg/L** Prep Date: **5/2/2017** RunNo: **35878**
Client ID: **LCSW** Batch ID: **R35878** Analysis Date: **5/2/2017** SeqNo: **687405**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.74	0.100	2.000	0	87.2	38.8	143				
Chloromethane	1.97	0.100	2.000	0	98.6	42.5	131				
Vinyl chloride	2.18	0.0200	2.000	0	109	56.2	130				
Bromomethane	2.12	0.100	2.000	0	106	45.4	138				
Trichlorofluoromethane	1.79	0.100	2.000	0	89.6	64.7	129				
Chloroethane	2.23	0.100	2.000	0	111	62.5	123				
1,1-Dichloroethene	2.19	0.100	2.000	0	109	60.7	146				
Methylene chloride	2.18	0.100	2.000	0	109	60.3	135				
trans-1,2-Dichloroethene	2.25	0.100	2.000	0	113	71.3	129				
Methyl tert-butyl ether (MTBE)	1.67	0.100	2.000	0	83.6	59.3	138				
1,1-Dichloroethane	2.07	0.100	2.000	0	104	71.3	129				
2,2-Dichloropropane	2.17	0.200	2.000	0	108	37.8	132				
cis-1,2-Dichloroethene	2.26	0.100	2.000	0	113	67.5	127				
Chloroform	2.00	0.100	2.000	0	99.9	70.3	123				
1,1,1-Trichloroethane (TCA)	1.67	0.100	2.000	0	83.4	67.9	134				
1,1-Dichloropropene	2.09	0.100	2.000	0	104	72.1	133				
Carbon tetrachloride	1.78	0.100	2.000	0	88.8	64.4	133				
1,2-Dichloroethane (EDC)	1.67	0.100	2.000	0	83.5	65.8	126				
Benzene	2.20	0.100	2.000	0	110	67.1	132				
Trichloroethene (TCE)	2.09	0.100	2.000	0	105	71.9	130				
1,2-Dichloropropane	2.09	0.100	2.000	0	105	71.9	131				
Dichlorobromomethane	1.92	0.100	2.000	0	96.0	70	130				
Dibromomethane	1.82	0.100	2.000	0	91.0	74.2	125				
cis-1,3-Dichloropropene	2.02	0.100	2.000	0	101	62.8	135				
Toluene	2.13	0.100	2.000	0	107	73.6	127				
trans-1,3-Dichloropropene	1.84	0.100	2.000	0	91.8	58.1	138				
1,1,2-Trichloroethane	1.86	0.100	2.000	0	92.9	65.4	128				
1,3-Dichloropropane	1.88	0.100	2.000	0	93.8	71.9	131				
Tetrachloroethene (PCE)	2.10	0.100	2.000	0	105	52.4	140				
Dibromochloromethane	1.86	0.100	2.000	0	93.2	68.7	139				
1,2-Dibromoethane (EDB)	1.85	0.00100	2.000	0	92.5	71.2	129				

Work Order: 1705011
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R35878** SampType: **LCS** Units: **µg/L** Prep Date: **5/2/2017** RunNo: **35878**
Client ID: **LCSW** Batch ID: **R35878** Analysis Date: **5/2/2017** SeqNo: **687405**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.97	0.100	2.000	0	98.3	77.2	122				
1,1,1,2-Tetrachloroethane	1.84	0.100	2.000	0	91.8	76.2	130				
Ethylbenzene	1.98	0.100	2.000	0	99.1	78	127				
m,p-Xylene	4.05	0.100	4.000	0	101	77.5	130				
o-Xylene	1.94	0.100	2.000	0	97.0	77.6	126				
Styrene	1.92	0.100	2.000	0	96.0	66.8	137				
Isopropylbenzene	2.00	0.100	2.000	0	100	75.9	133				
Bromoform	1.67	0.100	2.000	0	83.6	54.1	146				
1,1,2,2-Tetrachloroethane	1.71	0.100	2.000	0	85.3	68	134				
n-Propylbenzene	1.90	0.100	2.000	0	94.9	77.1	133				
Bromobenzene	1.82	0.100	2.000	0	91.2	71.1	131				
1,3,5-Trimethylbenzene	1.85	0.100	2.000	0	92.7	76.2	133				
2-Chlorotoluene	1.93	0.100	2.000	0	96.7	67.1	137				
4-Chlorotoluene	2.02	0.100	2.000	0	101	70.7	132				
tert-Butylbenzene	1.87	0.100	2.000	0	93.3	71.3	139				
1,2,3-Trichloropropane	1.62	0.100	2.000	0	81.1	70.8	132				
1,2,4-Trichlorobenzene	2.18	0.200	2.000	0	109	61.4	139				
sec-Butylbenzene	1.82	0.100	2.000	0	91.2	77.4	136				
4-Isopropyltoluene	1.84	0.100	2.000	0	92.2	78.1	131				
1,3-Dichlorobenzene	2.17	0.100	2.000	0	109	73.5	125				
1,4-Dichlorobenzene	2.19	0.100	2.000	0	109	71.4	125				
n-Butylbenzene	2.32	0.100	2.000	0	116	69.8	138				
1,2-Dichlorobenzene	2.13	0.100	2.000	0	106	74.2	123				
1,2-Dibromo-3-chloropropane	1.60	0.100	2.000	0	80.0	53.6	155				
1,2,4-Trimethylbenzene	1.81	0.100	2.000	0	90.7	72.3	133				
Hexachlorobutadiene	2.19	0.400	2.000	0	109	60.9	141				
Naphthalene	2.30	0.100	2.000	0	115	58.2	140				
1,2,3-Trichlorobenzene	2.09	0.400	2.000	0	104	61.3	133				
Surr: Dibromofluoromethane	2.30		2.500		91.9	61.1	128				
Surr: Toluene-d8	2.71		2.500		109	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.58		2.500		103	64.7	128				

Work Order: 1705011
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R35878**	SampType: **LCS**			Units: **µg/L**		Prep Date: **5/2/2017**		RunNo: **35878**			
Client ID: **LCSW**	Batch ID: **R35878**					Analysis Date: **5/2/2017**		SeqNo: **687405**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **MB-R35878**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **5/2/2017**		RunNo: **35878**			
Client ID: **MBLKW**	Batch ID: **R35878**					Analysis Date: **5/2/2017**		SeqNo: **687406**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									

Work Order: 1705011
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R35878** SampType: **MBLK** Units: **µg/L** Prep Date: **5/2/2017** RunNo: **35878**
Client ID: **MBLKW** Batch ID: **R35878** Analysis Date: **5/2/2017** SeqNo: **687406**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									

Work Order: 1705011
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R35878** SampType: **MBLK** Units: **µg/L** Prep Date: **5/2/2017** RunNo: **35878**
Client ID: **MBLKW** Batch ID: **R35878** Analysis Date: **5/2/2017** SeqNo: **687406**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.39		2.500		95.7	61.1	128				
Surr: Toluene-d8	2.65		2.500		106	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.43		2.500		97.1	64.7	128				

Sample ID **1705011-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/2/2017** RunNo: **35878**
Client ID: **AIR-INF** Batch ID: **R35878** Analysis Date: **5/2/2017** SeqNo: **687399**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	5.00						0		30	D
Chloromethane	ND	5.00						0		30	D
Vinyl chloride	ND	1.00						0		30	D
Bromomethane	ND	5.00						0		30	D
Trichlorofluoromethane	ND	5.00						0		30	D
Chloroethane	ND	5.00						0		30	D
1,1-Dichloroethene	ND	5.00						0		30	D
Methylene chloride	ND	5.00						0		30	D
trans-1,2-Dichloroethene	ND	5.00						0		30	D
Methyl tert-butyl ether (MTBE)	ND	5.00						0		30	D
1,1-Dichloroethane	ND	5.00						0		30	D
2,2-Dichloropropane	ND	10.0						0		30	D
cis-1,2-Dichloroethene	9.79	5.00						8.539	13.6	30	D
Chloroform	ND	5.00						0		30	D
1,1,1-Trichloroethane (TCA)	ND	5.00						0		30	D
1,1-Dichloropropene	ND	5.00						0		30	D
Carbon tetrachloride	ND	5.00						0		30	D
1,2-Dichloroethane (EDC)	ND	5.00						0		30	D
Benzene	ND	5.00						0		30	D

Work Order: 1705011
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705011-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/2/2017** RunNo: **35878**
Client ID: **AIR-INF** Batch ID: **R35878** Analysis Date: **5/2/2017** SeqNo: **687399**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	218	5.00						192.4	12.5	30	D
1,2-Dichloropropane	ND	5.00						0		30	D
Dichlorobromomethane	ND	5.00						0		30	D
Dibromomethane	ND	5.00						0		30	D
cis-1,3-Dichloropropene	ND	5.00						0		30	D
Toluene	ND	5.00						0		30	D
trans-1,3-Dichloropropene	ND	5.00						0		30	D
1,1,2-Trichloroethane	ND	5.00						0		30	D
1,3-Dichloropropane	ND	5.00						0		30	D
Tetrachloroethene (PCE)	8.99	5.00						8.004	11.6	30	D
Dibromochloromethane	ND	5.00						0		30	D
1,2-Dibromoethane (EDB)	ND	0.0500						0		30	D
Chlorobenzene	ND	5.00						0		30	D
1,1,1,2-Tetrachloroethane	ND	5.00						0		30	D
Ethylbenzene	ND	5.00						0		30	D
m,p-Xylene	ND	5.00						0		30	D
o-Xylene	ND	5.00						0		30	D
Styrene	ND	5.00						0		30	D
Isopropylbenzene	ND	5.00						0		30	D
Bromoform	ND	5.00						0		30	D
1,1,2,2-Tetrachloroethane	ND	5.00						0		30	D
n-Propylbenzene	ND	5.00						0		30	D
Bromobenzene	ND	5.00						0		30	D
1,3,5-Trimethylbenzene	ND	5.00						0		30	D
2-Chlorotoluene	ND	5.00						0		30	D
4-Chlorotoluene	ND	5.00						0		30	D
tert-Butylbenzene	ND	5.00						0		30	D
1,2,3-Trichloropropane	ND	5.00						0		30	D
1,2,4-Trichlorobenzene	ND	10.0						0		30	D
sec-Butylbenzene	ND	5.00						0		30	D
4-Isopropyltoluene	ND	5.00						0		30	D

Work Order: 1705011
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705011-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/2/2017** RunNo: **35878**
Client ID: **AIR-INF** Batch ID: **R35878** Analysis Date: **5/2/2017** SeqNo: **687399**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	5.00						0		30	D
1,4-Dichlorobenzene	ND	5.00						0		30	D
n-Butylbenzene	ND	5.00						0		30	D
1,2-Dichlorobenzene	ND	5.00						0		30	D
1,2-Dibromo-3-chloropropane	ND	5.00						0		30	D
1,2,4-Trimethylbenzene	ND	5.00						0		30	D
Hexachlorobutadiene	ND	20.0						0		30	D
Naphthalene	ND	5.00						0		30	D
1,2,3-Trichlorobenzene	ND	20.0						0		30	D
Surr: Dibromofluoromethane	120		125.0		96.1	61.1	128		0		D
Surr: Toluene-d8	130		125.0		104	68.2	129		0		D
Surr: 1-Bromo-4-fluorobenzene-BFB	102		125.0		81.5	64.7	128		0		D

NOTES:
Replicate analyzed at a dilution due to sample matrix.

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1705011**
Logged by:	**Clare Griggs**	Date Received:	**5/1/2017 3:20:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Courier		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Sample		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Internal): 1705011

Date: 5/1/17 Page: 1 of: 1

Client: Environmental Partners Inc
Address: 1180 NW Maple St. Suite 310
City, State, Zip: Issaquah, WA 98027
Telephone: 425-395-0010 Fax:

Project Name: WA Industries
Project No: 64001 Collected by: J. Sherrod
Location: 825 S. Dakota St. Seattle, WA
Reports To (PM): Sean Trimble
Email (PM): seant@epi-wa.com

* Gas Matrix Codes: I = Indoor SS = Subslab L = Landfill SG = Soil Gas M = Plume Mapping Q = Fuel Gas Quality L = LEED (Consult Client Services)

** Container Codes: 6L = Six Liter Canister (Summa) TB = Tedlar Bag BV = 1 Liter Bottle Vac MC = 1 Liter MiniCan HP = High Pressure Cylinder HJ = Glass Headspace Jar

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Gas Matrix Code *	Anticipated Fill Time	Sample Volume	Container Type **	Internal: Evacuation Pressure (mtorr)	Internal: Pressure at Time of Pick-up (" Hg)	Internal: Equipment Certificaton Code	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	AIR-INF	Canister / Flow Reg	5/1/17 Date / Time	SG		1L	TB	Pressure / Date	Pressure / Date/Time	Container / Regulator	Pressure / Time	Pressure / Time	VOC's by 8260c		
4		Canister / Flow Reg	Date / Time					Pressure / Date	Pressure / Date/Time	Container / Regulator	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time					Pressure / Date	Pressure / Date/Time	Container / Regulator	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time					Pressure / Date	Pressure / Date/Time	Container / Regulator	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time					Pressure / Date	Pressure / Date/Time	Container / Regulator	Pressure / Time	Pressure / Time			

Condition:

Seals Intact: Y N N/A

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	5/1/17 1450	x	5/1/2017 1450
x	5/1/2017 1520	x	5/1/17 1520

TAT --> STD Rush (specify) 2 day

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1705027

May 05, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 5/2/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

CC:
Cynthia Moon

Date: *05/05/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1705027

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1705027-001	AIR-EFF	05/02/2017 1:00 PM	05/02/2017 2:50 PM
1705027-002	AIR-INF	05/02/2017 1:05 PM	05/02/2017 2:50 PM

Case Narrative

WO#: **1705027**
Date: **5/5/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc.
Collection Date: 5/2/2017 1:00:00 PM
Project: WA Industries
Lab ID: 1705027-001
Matrix: Air
Client Sample ID: **AIR-EFF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R35942 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Chloromethane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/4/2017 12:20:04 PM
Bromomethane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Chloroethane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Methylene chloride	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/4/2017 12:20:04 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Chloroform	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Benzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Trichloroethene (TCE)	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Dibromomethane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Toluene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/4/2017 12:20:04 PM
Chlorobenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Ethylbenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
m,p-Xylene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
o-Xylene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Styrene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Bromoform	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM

Analytical Report

Work Order: **1705027**
Date Reported: **5/5/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/2/2017 1:00:00 PM
Project: WA Industries
Lab ID: 1705027-001
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R35942		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Bromobenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/4/2017 12:20:04 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/4/2017 12:20:04 PM
Naphthalene	ND	0.100		µg/L	1	5/4/2017 12:20:04 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/4/2017 12:20:04 PM
Surr: Dibromofluoromethane	96.3	61.1-128		%Rec	1	5/4/2017 12:20:04 PM
Surr: Toluene-d8	96.4	66-138		%Rec	1	5/4/2017 12:20:04 PM
Surr: 1-Bromo-4-fluorobenzene	89.6	64.7-128		%Rec	1	5/4/2017 12:20:04 PM

Analytical Report

Work Order: **1705027**
Date Reported: **5/5/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/2/2017 1:05:00 PM
Project: WA Industries
Lab ID: 1705027-002
Matrix: Air
Client Sample ID: **AIR-INF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R35942 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Chloromethane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/4/2017 3:54:21 PM
Bromomethane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Chloroethane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Methylene chloride	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
trans-1,2-Dichloroethene	0.105	0.100		µg/L	1	5/4/2017 3:54:21 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/4/2017 3:54:21 PM
cis-1,2-Dichloroethene	2.98	5.00	JD	µg/L	50	5/4/2017 4:33:31 PM
Chloroform	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Benzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Trichloroethene (TCE)	93.3	5.00	D	µg/L	50	5/4/2017 4:33:31 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Dibromomethane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Toluene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Tetrachloroethene (PCE)	3.40	5.00	JD	µg/L	50	5/4/2017 4:33:31 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/4/2017 3:54:21 PM
Chlorobenzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Ethylbenzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
m,p-Xylene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
o-Xylene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Styrene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Bromoform	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM

Analytical Report

Work Order: **1705027**
Date Reported: **5/5/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/2/2017 1:05:00 PM
Project: WA Industries
Lab ID: 1705027-002
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R35942		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
Bromobenzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/4/2017 3:54:21 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,2,4-Trimethylbenzene	0.119	0.100		µg/L	1	5/4/2017 3:54:21 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/4/2017 3:54:21 PM
Naphthalene	ND	0.100		µg/L	1	5/4/2017 3:54:21 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/4/2017 3:54:21 PM
Surr: Dibromofluoromethane	99.5	61.1-128		%Rec	1	5/4/2017 3:54:21 PM
Surr: Toluene-d8	102	66-138		%Rec	1	5/4/2017 3:54:21 PM
Surr: 1-Bromo-4-fluorobenzene	91.4	64.7-128		%Rec	1	5/4/2017 3:54:21 PM

Work Order: 1705027
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R35942** SampType: **MBLK** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **MBLKW** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688547**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									

Work Order: 1705027
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R35942** SampType: **MBLK** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **MBLKW** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688547**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.48		2.500		99.1	61.1	128				
Surr: Toluene-d8	2.45		2.500		98.1	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.18		2.500		87.2	64.7	128				

Work Order: 1705027
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R35942** SampType: **MBLK** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **MBLKW** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688547**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1705027-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **AIR-EFF** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688538**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	0.144	0.100						0.07275	65.7	30	
1,2-Dichloropropane	ND	0.100						0		30	
Dichlorobromomethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	

Work Order: 1705027
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705027-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **AIR-EFF** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688538**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.00100						0		30	
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	0.106	0.100						0	200	30	

Work Order: 1705027
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705027-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **AIR-EFF** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688538**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.38		2.500		95.4	61.1	128		0		
Surr: Toluene-d8	2.46		2.500		98.4	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.34		2.500		93.6	64.7	128		0		

Sample ID **LCS-R35942** SampType: **LCS** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **LCSW** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688546**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.65	0.100	2.000	0	82.7	38.8	143				
Chloromethane	1.90	0.100	2.000	0	95.2	42.5	131				
Vinyl chloride	1.89	0.0200	2.000	0	94.4	56.2	130				
Bromomethane	2.59	0.100	2.000	0	129	45.4	138				
Trichlorofluoromethane	1.92	0.100	2.000	0	95.9	64.7	129				
Chloroethane	1.94	0.100	2.000	0	97.1	62.5	123				
1,1-Dichloroethene	1.77	0.100	2.000	0	88.4	60.7	146				
Methylene chloride	2.05	0.100	2.000	0	102	60.3	135				
trans-1,2-Dichloroethene	2.01	0.100	2.000	0	100	71.3	129				
Methyl tert-butyl ether (MTBE)	2.06	0.100	2.000	0	103	59.3	138				
1,1-Dichloroethane	2.04	0.100	2.000	0	102	71.3	129				
2,2-Dichloropropane	3.09	0.200	2.000	0	154	37.8	132				S
cis-1,2-Dichloroethene	2.01	0.100	2.000	0	101	67.5	127				
Chloroform	2.05	0.100	2.000	0	102	70.3	123				
1,1,1-Trichloroethane (TCA)	2.24	0.100	2.000	0	112	67.9	134				
1,1-Dichloropropene	1.98	0.100	2.000	0	99.1	72.1	133				
Carbon tetrachloride	1.93	0.100	2.000	0	96.5	64.4	133				
1,2-Dichloroethane (EDC)	2.00	0.100	2.000	0	100	65.8	126				
Benzene	2.01	0.100	2.000	0	100	67.1	132				

Work Order: 1705027
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R35942** SampType: **LCS** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **LCSW** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688546**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	2.00	0.100	2.000	0	100	71.9	130				
1,2-Dichloropropane	2.06	0.100	2.000	0	103	71.9	131				
Dichlorobromomethane	2.03	0.100	2.000	0	101	70	130				
Dibromomethane	2.08	0.100	2.000	0	104	74.2	125				
cis-1,3-Dichloropropene	2.05	0.100	2.000	0	102	62.8	135				
Toluene	2.03	0.100	2.000	0	102	73.6	127				
trans-1,3-Dichloropropene	2.12	0.100	2.000	0	106	58.1	138				
1,1,2-Trichloroethane	2.01	0.100	2.000	0	101	65.4	128				
1,3-Dichloropropane	2.03	0.100	2.000	0	101	71.9	131				
Tetrachloroethene (PCE)	2.00	0.100	2.000	0	100	52.4	140				
Dibromochloromethane	2.08	0.100	2.000	0	104	68.7	139				
1,2-Dibromoethane (EDB)	2.09	0.00100	2.000	0	105	71.2	129				
Chlorobenzene	2.03	0.100	2.000	0	101	77.2	122				
1,1,1,2-Tetrachloroethane	2.08	0.100	2.000	0	104	76.2	130				
Ethylbenzene	2.06	0.100	2.000	0	103	78	127				
m,p-Xylene	4.19	0.100	4.000	0	105	77.5	130				
o-Xylene	2.02	0.100	2.000	0	101	77.6	126				
Styrene	2.09	0.100	2.000	0	104	66.8	137				
Isopropylbenzene	2.01	0.100	2.000	0	100	75.9	133				
Bromoform	2.10	0.100	2.000	0	105	54.1	146				
1,1,2,2-Tetrachloroethane	2.07	0.100	2.000	0	104	68	134				
n-Propylbenzene	2.14	0.100	2.000	0	107	77.1	133				
Bromobenzene	2.04	0.100	2.000	0	102	71.1	131				
1,3,5-Trimethylbenzene	1.99	0.100	2.000	0	99.6	76.2	133				
2-Chlorotoluene	2.09	0.100	2.000	0	105	67.1	137				
4-Chlorotoluene	2.14	0.100	2.000	0	107	70.7	132				
tert-Butylbenzene	2.00	0.100	2.000	0	100	71.3	139				
1,2,3-Trichloropropane	2.11	0.100	2.000	0	105	70.8	132				
1,2,4-Trichlorobenzene	1.97	0.200	2.000	0	98.4	61.4	139				
sec-Butylbenzene	2.07	0.100	2.000	0	103	77.4	136				
4-Isopropyltoluene	2.02	0.100	2.000	0	101	78.1	131				

Work Order: 1705027
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R35942** SampType: **LCS** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **LCSW** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688546**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	2.09	0.100	2.000	0	104	73.5	125				
1,4-Dichlorobenzene	2.05	0.100	2.000	0	103	71.4	125				
n-Butylbenzene	2.04	0.100	2.000	0	102	69.8	138				
1,2-Dichlorobenzene	2.07	0.100	2.000	0	103	74.2	123				
1,2-Dibromo-3-chloropropane	2.07	0.100	2.000	0	104	53.6	155				
1,2,4-Trimethylbenzene	2.04	0.100	2.000	0	102	72.3	133				
Hexachlorobutadiene	2.03	0.400	2.000	0	101	60.9	141				
Naphthalene	1.76	0.100	2.000	0	87.9	58.2	140				
1,2,3-Trichlorobenzene	1.95	0.400	2.000	0	97.4	61.3	133				
Surr: Dibromofluoromethane	2.48		2.500		99.3	61.1	128				
Surr: Toluene-d8	2.56		2.500		103	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.78		2.500		111	64.7	128				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1705027**
Logged by:	**Erica Silva**	Date Received:	**5/2/2017 2:50:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Internal): 1705027

Date: 5-2-17 Page: 1 of: 1

Client: Environmental Partners Inc.
Address: 1180 NW Maple St. Suite 310
City, State, Zip: Issaquah, WA 98027
Telephone: 425-395-0010 Fax:

Project Name: WA Industries
Project No: 64001 Collected by: J. Sherrod
Location: 825 S. DaKota St. Seattle, WA
Reports To (PM): Sean Trimble
Email (PM): seant@epi-wa.com

* Gas Matrix Codes: I = Indoor SS = Subslab L = Landfill SG = Soil Gas M = Plume Mapping Q = Fuel Gas Quality L = LEED (Consult Client Services)

** Container Codes: 6L = Six Liter Canister (Summa) TB = Tedlar Bag BV = 1 Liter Bottle Vac MC = 1 Liter MiniCan HP = High Pressure Cylinder HJ = Glass Headspace Jar

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Gas Matrix Code *	Anticipated Fill Time	Sample Volume	Container Type **	Internal: Evacuation Pressure (mtorr)	Internal: Pressure at Time of Pick-up (" Hg)	Internal: Equipment Certificaton Code	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	AIR-EFF	Canister / Flow Reg	5-2-17 Date / 1300 Time	SG	.5 min	1L	TB	Pressure / Date	Pressure / Date/Time	Container / Regulator	Pressure / Time	Pressure / Time	VOCs by 8260c		
4	AIR-INF	Canister / Flow Reg	5-2-17 Date / 1305 Time	SG	.5 min	1L	TB	Pressure / Date	Pressure / Date/Time	Container / Regulator	Pressure / Time	Pressure / Time	VOCs by 8260c		
4		Canister / Flow Reg	Date / Time					Pressure / Date	Pressure / Date/Time	Container / Regulator	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time					Pressure / Date	Pressure / Date/Time	Container / Regulator	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time					Pressure / Date	Pressure / Date/Time	Container / Regulator	Pressure / Time	Pressure / Time			

Condition:

Seals Intact: Y N N/A

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	5/2/17 1450	x	5/2/2017 1450
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> (STD) Rush (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1705047

May 16, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 5/3/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

CC:
Cynthia Moon

Date: *05/16/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1705047

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1705047-001	AIR-MID	05/03/2017 1:00 PM	05/03/2017 3:43 PM
1705047-002	AIR-INF	05/03/2017 1:10 PM	05/03/2017 3:43 PM

Case Narrative

WO#: **1705047**
Date: **5/16/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc.
Collection Date: 5/3/2017 1:00:00 PM
Project: WA Industries
Lab ID: 1705047-001
Matrix: Air
Client Sample ID: **AIR-MID**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R35942 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Chloromethane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/4/2017 1:51:35 PM
Bromomethane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Chloroethane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Methylene chloride	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/4/2017 1:51:35 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Chloroform	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Benzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Trichloroethene (TCE)	0.196	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Dibromomethane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Toluene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/4/2017 1:51:35 PM
Chlorobenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Ethylbenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
m,p-Xylene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
o-Xylene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Styrene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Bromoform	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM

Analytical Report

Work Order: **1705047**
Date Reported: **5/16/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/3/2017 1:00:00 PM
Project: WA Industries
Lab ID: 1705047-001
Matrix: Air
Client Sample ID: **AIR-MID**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R35942		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Bromobenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/4/2017 1:51:35 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/4/2017 1:51:35 PM
Naphthalene	ND	0.100		µg/L	1	5/4/2017 1:51:35 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/4/2017 1:51:35 PM
Surr: Dibromofluoromethane	96.6	61.1-128		%Rec	1	5/4/2017 1:51:35 PM
Surr: Toluene-d8	97.0	66-138		%Rec	1	5/4/2017 1:51:35 PM
Surr: 1-Bromo-4-fluorobenzene	104	64.7-128		%Rec	1	5/4/2017 1:51:35 PM

Client: Environmental Partners, Inc. **Collection Date:** 5/3/2017 1:10:00 PM
Project: WA Industries
Lab ID: 1705047-002 **Matrix:** Air
Client Sample ID: **AIR-INF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R35942 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Chloromethane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/4/2017 2:22:11 PM
Bromomethane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Chloroethane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Methylene chloride	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/4/2017 2:22:11 PM
cis-1,2-Dichloroethene	3.01	3.00	D	µg/L	30	5/4/2017 3:03:57 PM
Chloroform	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Benzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Trichloroethene (TCE)	84.6	3.00	D	µg/L	30	5/4/2017 3:03:57 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Dibromomethane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Toluene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Tetrachloroethene (PCE)	3.32	3.00	D	µg/L	30	5/4/2017 3:03:57 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/4/2017 2:22:11 PM
Chlorobenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Ethylbenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
m,p-Xylene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
o-Xylene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Styrene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Bromoform	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM

Analytical Report

Work Order: **1705047**
Date Reported: **5/16/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/3/2017 1:10:00 PM
Project: WA Industries
Lab ID: 1705047-002
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R35942		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Bromobenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/4/2017 2:22:11 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/4/2017 2:22:11 PM
Naphthalene	ND	0.100		µg/L	1	5/4/2017 2:22:11 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/4/2017 2:22:11 PM
Surr: Dibromofluoromethane	95.0	61.1-128		%Rec	1	5/4/2017 2:22:11 PM
Surr: Toluene-d8	103	66-138		%Rec	1	5/4/2017 2:22:11 PM
Surr: 1-Bromo-4-fluorobenzene	91.1	64.7-128		%Rec	1	5/4/2017 2:22:11 PM

Work Order: 1705047
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **CCV-C-VOC** SampType: **CCV** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35948**
Client ID: **CCV** Batch ID: **R35948** Analysis Date: **5/4/2017** SeqNo: **688604**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,2-Dichloroethene	20.0	0.100	20.00	0	100	80	120				
Trichloroethene (TCE)	19.5	0.100	20.00	0	97.5	80	120				
Tetrachloroethene (PCE)	20.7	0.100	20.00	0	103	80	120				
Surr: Dibromofluoromethane	25.1		25.00		100	67.1	129				
Surr: Toluene-d8	25.6		25.00		102	68.2	129				
Surr: 1-Bromo-4-fluorobenzene-BFB	25.9		25.00		103	83.7	116				

Work Order: 1705047
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R35942** SampType: **MBLK** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **MBLKW** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688547**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									

Work Order: 1705047
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R35942** SampType: **MBLK** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **MBLKW** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688547**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.48		2.500		99.1	61.1	128				
Surr: Toluene-d8	2.45		2.500		98.1	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.18		2.500		87.2	64.7	128				

Work Order: 1705047
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R35942** SampType: **MBLK** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **MBLKW** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688547**

Sample ID **1705027-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **BATCH** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688538**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	0.144	0.100						0.07275	65.7	30	
1,2-Dichloropropane	ND	0.100						0		30	
Dichlorobromomethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	

Work Order: 1705047
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705027-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **BATCH** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688538**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.00100						0		30	
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	0.106	0.100						0	200	30	

Work Order: 1705047
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705027-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **BATCH** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688538**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.38		2.500		95.4	61.1	128		0		
Surr: Toluene-d8	2.46		2.500		98.4	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.34		2.500		93.6	64.7	128		0		

Sample ID **LCS-R35942** SampType: **LCS** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **LCSW** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688546**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.65	0.100	2.000	0	82.7	38.8	143				
Chloromethane	1.90	0.100	2.000	0	95.2	42.5	131				
Vinyl chloride	1.89	0.0200	2.000	0	94.4	56.2	130				
Bromomethane	2.59	0.100	2.000	0	129	45.4	138				
Trichlorofluoromethane	1.92	0.100	2.000	0	95.9	64.7	129				
Chloroethane	1.94	0.100	2.000	0	97.1	62.5	123				
1,1-Dichloroethene	1.77	0.100	2.000	0	88.4	60.7	146				
Methylene chloride	2.05	0.100	2.000	0	102	60.3	135				
trans-1,2-Dichloroethene	2.01	0.100	2.000	0	100	71.3	129				
Methyl tert-butyl ether (MTBE)	2.06	0.100	2.000	0	103	59.3	138				
1,1-Dichloroethane	2.04	0.100	2.000	0	102	71.3	129				
2,2-Dichloropropane	3.09	0.200	2.000	0	154	37.8	132				S
cis-1,2-Dichloroethene	2.01	0.100	2.000	0	101	67.5	127				
Chloroform	2.05	0.100	2.000	0	102	70.3	123				
1,1,1-Trichloroethane (TCA)	2.24	0.100	2.000	0	112	67.9	134				
1,1-Dichloropropene	1.98	0.100	2.000	0	99.1	72.1	133				
Carbon tetrachloride	1.93	0.100	2.000	0	96.5	64.4	133				
1,2-Dichloroethane (EDC)	2.00	0.100	2.000	0	100	65.8	126				
Benzene	2.01	0.100	2.000	0	100	67.1	132				

Work Order: 1705047
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R35942** SampType: **LCS** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **LCSW** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688546**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	2.00	0.100	2.000	0	100	71.9	130				
1,2-Dichloropropane	2.06	0.100	2.000	0	103	71.9	131				
Dichlorobromomethane	2.03	0.100	2.000	0	101	70	130				
Dibromomethane	2.08	0.100	2.000	0	104	74.2	125				
cis-1,3-Dichloropropene	2.05	0.100	2.000	0	102	62.8	135				
Toluene	2.03	0.100	2.000	0	102	73.6	127				
trans-1,3-Dichloropropene	2.12	0.100	2.000	0	106	58.1	138				
1,1,2-Trichloroethane	2.01	0.100	2.000	0	101	65.4	128				
1,3-Dichloropropane	2.03	0.100	2.000	0	101	71.9	131				
Tetrachloroethene (PCE)	2.00	0.100	2.000	0	100	52.4	140				
Dibromochloromethane	2.08	0.100	2.000	0	104	68.7	139				
1,2-Dibromoethane (EDB)	2.09	0.00100	2.000	0	105	71.2	129				
Chlorobenzene	2.03	0.100	2.000	0	101	77.2	122				
1,1,1,2-Tetrachloroethane	2.08	0.100	2.000	0	104	76.2	130				
Ethylbenzene	2.06	0.100	2.000	0	103	78	127				
m,p-Xylene	4.19	0.100	4.000	0	105	77.5	130				
o-Xylene	2.02	0.100	2.000	0	101	77.6	126				
Styrene	2.09	0.100	2.000	0	104	66.8	137				
Isopropylbenzene	2.01	0.100	2.000	0	100	75.9	133				
Bromoform	2.10	0.100	2.000	0	105	54.1	146				
1,1,2,2-Tetrachloroethane	2.07	0.100	2.000	0	104	68	134				
n-Propylbenzene	2.14	0.100	2.000	0	107	77.1	133				
Bromobenzene	2.04	0.100	2.000	0	102	71.1	131				
1,3,5-Trimethylbenzene	1.99	0.100	2.000	0	99.6	76.2	133				
2-Chlorotoluene	2.09	0.100	2.000	0	105	67.1	137				
4-Chlorotoluene	2.14	0.100	2.000	0	107	70.7	132				
tert-Butylbenzene	2.00	0.100	2.000	0	100	71.3	139				
1,2,3-Trichloropropane	2.11	0.100	2.000	0	105	70.8	132				
1,2,4-Trichlorobenzene	1.97	0.200	2.000	0	98.4	61.4	139				
sec-Butylbenzene	2.07	0.100	2.000	0	103	77.4	136				
4-Isopropyltoluene	2.02	0.100	2.000	0	101	78.1	131				

Work Order: 1705047
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R35942** SampType: **LCS** Units: **µg/L** Prep Date: **5/4/2017** RunNo: **35942**
Client ID: **LCSW** Batch ID: **R35942** Analysis Date: **5/4/2017** SeqNo: **688546**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	2.09	0.100	2.000	0	104	73.5	125				
1,4-Dichlorobenzene	2.05	0.100	2.000	0	103	71.4	125				
n-Butylbenzene	2.04	0.100	2.000	0	102	69.8	138				
1,2-Dichlorobenzene	2.07	0.100	2.000	0	103	74.2	123				
1,2-Dibromo-3-chloropropane	2.07	0.100	2.000	0	104	53.6	155				
1,2,4-Trimethylbenzene	2.04	0.100	2.000	0	102	72.3	133				
Hexachlorobutadiene	2.03	0.400	2.000	0	101	60.9	141				
Naphthalene	1.76	0.100	2.000	0	87.9	58.2	140				
1,2,3-Trichlorobenzene	1.95	0.400	2.000	0	97.4	61.3	133				
Surr: Dibromofluoromethane	2.48		2.500		99.3	61.1	128				
Surr: Toluene-d8	2.56		2.500		103	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.78		2.500		111	64.7	128				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1705047**
Logged by:	**Erica Silva**	Date Received:	**5/3/2017 3:43:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Courier		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☑	Not Required ☐
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Laboratory Project No (Internal): 1705047

Date: 5-3-17 Page: 1 of: 1

Project Name: WA Industries

Special Remarks:
- Provide EDD
- Standard TAT for AIR-INF
- 2 day TAT for AIR-MID

Client: Environmental Partners Inc.

Project No: 6400l

Address: 1180 NW Maple St.

Location: 825 S. Dakota St.

City, State, Zip: Issaquah, WA 98027

Collected by: J. Sherrod

Telephone: 425-395-0010

Reports to (PM): Sean Trimble

Fax:

Email (PM): sean@epi-wa.com

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	AIR-MID	Canister / Flow Reg	5-3-17 Date / 1300 Time	S	TB	1L	.5mL/m		Pressure / Date	Pressure / Time	Pressure / Time	VOCs 8260c		
2	AIR-INF	Canister / Flow Reg	5-3-17 Date / 1360 Time	S	TB	1L	.5mL/m		Pressure / Date	Pressure / Time	Pressure / Time	VOCs 8260c		
3		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	5/3/17 1440	x	5/3/2017 1440
x	5/3/2017 1543	x	5/3/17 1543

Turn-Around Time:
- [x] Standard
- [ ] 3 Day
- [x] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1705064

May 09, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 5/5/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

CC:
Cynthia Moon

Date: *05/09/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1705064

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1705064-001	AIR-INF	05/05/2017 8:00 AM	05/05/2017 9:13 AM
1705064-002	AIR-EFF	05/05/2017 8:10 AM	05/05/2017 9:13 AM

Case Narrative

WO#: **1705064**
Date: **5/9/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 5/5/2017 8:00:00 AM
Project: WA Industries
Lab ID: 1705064-001 **Matrix:** Air
Client Sample ID: **AIR-INF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R35967 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Chloromethane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/5/2017 2:08:14 PM
Bromomethane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Chloroethane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Methylene chloride	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/5/2017 2:08:14 PM
cis-1,2-Dichloroethene	2.02	0.100		µg/L	1	5/5/2017 2:08:14 PM
Chloroform	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Benzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Trichloroethene (TCE)	44.3	3.00	D	µg/L	30	5/5/2017 1:39:47 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Dibromomethane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Toluene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Tetrachloroethene (PCE)	2.74	0.100		µg/L	1	5/5/2017 2:08:14 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/5/2017 2:08:14 PM
Chlorobenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Ethylbenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
m,p-Xylene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
o-Xylene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Styrene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Bromoform	ND	0.100	Q	µg/L	1	5/5/2017 2:08:14 PM

Analytical Report

Work Order: **1705064**
Date Reported: **5/9/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/5/2017 8:00:00 AM
Project: WA Industries
Lab ID: 1705064-001
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R35967		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Bromobenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/5/2017 2:08:14 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,2-Dibromo-3-chloropropane	ND	0.100	Q	µg/L	1	5/5/2017 2:08:14 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/5/2017 2:08:14 PM
Naphthalene	ND	0.100		µg/L	1	5/5/2017 2:08:14 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/5/2017 2:08:14 PM
Surr: Dibromofluoromethane	97.9	61.1-128		%Rec	1	5/5/2017 2:08:14 PM
Surr: Toluene-d8	103	66-138		%Rec	1	5/5/2017 2:08:14 PM
Surr: 1-Bromo-4-fluorobenzene	95.7	64.7-128		%Rec	1	5/5/2017 2:08:14 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Client: Environmental Partners, Inc.
Collection Date: 5/5/2017 8:10:00 AM
Project: WA Industries
Lab ID: 1705064-002
Matrix: Air
Client Sample ID: **AIR-EFF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R35967 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Chloromethane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Vinyl chloride	ND	0.0200		µg/L	1	5/5/2017 11:46:04 AM
Bromomethane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Chloroethane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Methylene chloride	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/5/2017 11:46:04 AM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Chloroform	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Carbon tetrachloride	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Benzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Trichloroethene (TCE)	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Dichlorobromomethane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Dibromomethane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Toluene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Dibromochloromethane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/5/2017 11:46:04 AM
Chlorobenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Ethylbenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
m,p-Xylene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
o-Xylene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Styrene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Isopropylbenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Bromoform	ND	0.100	Q	µg/L	1	5/5/2017 11:46:04 AM

Analytical Report

Work Order: **1705064**
Date Reported: **5/9/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/5/2017 8:10:00 AM
Project: WA Industries
Lab ID: 1705064-002
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R35967		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
n-Propylbenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Bromobenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
2-Chlorotoluene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
4-Chlorotoluene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
tert-Butylbenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/5/2017 11:46:04 AM
sec-Butylbenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
n-Butylbenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,2-Dibromo-3-chloropropane	ND	0.100	Q	µg/L	1	5/5/2017 11:46:04 AM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/5/2017 11:46:04 AM
Naphthalene	ND	0.100		µg/L	1	5/5/2017 11:46:04 AM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/5/2017 11:46:04 AM
Surr: Dibromofluoromethane	96.3	61.1-128		%Rec	1	5/5/2017 11:46:04 AM
Surr: Toluene-d8	99.7	66-138		%Rec	1	5/5/2017 11:46:04 AM
Surr: 1-Bromo-4-fluorobenzene	93.3	64.7-128		%Rec	1	5/5/2017 11:46:04 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1705064
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R35967** SampType: **MBLK** Units: **µg/L** Prep Date: **5/5/2017** RunNo: **35967**
Client ID: **MBLKW** Batch ID: **R35967** Analysis Date: **5/5/2017** SeqNo: **689031**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									

Work Order: 1705064
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R35967** SampType: **MBLK** Units: **µg/L** Prep Date: **5/5/2017** RunNo: **35967**
Client ID: **MBLKW** Batch ID: **R35967** Analysis Date: **5/5/2017** SeqNo: **689031**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									Q
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									Q
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.42		2.500		96.7	61.1	128				
Surr: Toluene-d8	2.49		2.500		99.8	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.34		2.500		93.6	64.7	128				

Work Order: 1705064
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R35967** SampType: **MBLK** Units: **µg/L** Prep Date: **5/5/2017** RunNo: **35967**
Client ID: **MBLKW** Batch ID: **R35967** Analysis Date: **5/5/2017** SeqNo: **689031**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1705064-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/5/2017** RunNo: **35967**
Client ID: **AIR-EFF** Batch ID: **R35967** Analysis Date: **5/5/2017** SeqNo: **689028**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.100						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Dichlorobromomethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	

Work Order: 1705064
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705064-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/5/2017** RunNo: **35967**
Client ID: **AIR-EFF** Batch ID: **R35967** Analysis Date: **5/5/2017** SeqNo: **689028**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.00100						0		30	
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	Q
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	Q

Work Order: 1705064
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705064-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/5/2017** RunNo: **35967**
Client ID: **AIR-EFF** Batch ID: **R35967** Analysis Date: **5/5/2017** SeqNo: **689028**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.45		2.500		98.0	61.1	128		0		
Surr: Toluene-d8	2.50		2.500		100	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.36		2.500		94.5	64.7	128		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-R35967** SampType: **LCS** Units: **µg/L** Prep Date: **5/5/2017** RunNo: **35967**
Client ID: **LCSW** Batch ID: **R35967** Analysis Date: **5/5/2017** SeqNo: **689030**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.72	0.100	2.000	0	86.2	38.8	143				
Chloromethane	1.71	0.100	2.000	0	85.4	42.5	131				
Vinyl chloride	1.75	0.0200	2.000	0	87.5	56.2	130				
Bromomethane	1.79	0.100	2.000	0	89.4	45.4	138				
Trichlorofluoromethane	1.86	0.100	2.000	0	92.8	64.7	129				
Chloroethane	1.80	0.100	2.000	0	89.8	62.5	123				
1,1-Dichloroethene	1.85	0.100	2.000	0	92.7	60.7	146				
Methylene chloride	1.92	0.100	2.000	0	95.9	60.3	135				
trans-1,2-Dichloroethene	1.89	0.100	2.000	0	94.6	71.3	129				
Methyl tert-butyl ether (MTBE)	1.68	0.100	2.000	0	84.1	59.3	138				
1,1-Dichloroethane	1.97	0.100	2.000	0	98.4	71.3	129				
2,2-Dichloropropane	3.79	0.200	2.000	0	190	37.8	132				S
cis-1,2-Dichloroethene	1.94	0.100	2.000	0	97.0	67.5	127				
Chloroform	1.95	0.100	2.000	0	97.3	70.3	123				
1,1,1-Trichloroethane (TCA)	1.93	0.100	2.000	0	96.6	67.9	134				
1,1-Dichloropropene	1.98	0.100	2.000	0	99.1	72.1	133				
Carbon tetrachloride	1.93	0.100	2.000	0	96.4	64.4	133				

Work Order: 1705064
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R35967** SampType: **LCS** Units: **µg/L** Prep Date: **5/5/2017** RunNo: **35967**
Client ID: **LCSW** Batch ID: **R35967** Analysis Date: **5/5/2017** SeqNo: **689030**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane (EDC)	1.82	0.100	2.000	0	90.9	65.8	126				
Benzene	1.98	0.100	2.000	0	99.2	67.1	132				
Trichloroethene (TCE)	2.04	0.100	2.000	0	102	71.9	130				
1,2-Dichloropropane	2.01	0.100	2.000	0	100	71.9	131				
Dichlorobromomethane	1.86	0.100	2.000	0	93.0	70	130				
Dibromomethane	1.90	0.100	2.000	0	95.0	74.2	125				
cis-1,3-Dichloropropene	2.23	0.100	2.000	0	111	62.8	135				
Toluene	2.04	0.100	2.000	0	102	73.6	127				
trans-1,3-Dichloropropene	2.17	0.100	2.000	0	108	58.1	138				
1,1,2-Trichloroethane	1.88	0.100	2.000	0	94.2	65.4	128				
1,3-Dichloropropane	1.86	0.100	2.000	0	93.1	71.9	131				
Tetrachloroethene (PCE)	2.04	0.100	2.000	0	102	52.4	140				
Dibromochloromethane	1.97	0.100	2.000	0	98.6	68.7	139				
1,2-Dibromoethane (EDB)	1.80	0.00100	2.000	0	90.2	71.2	129				
Chlorobenzene	2.02	0.100	2.000	0	101	77.2	122				
1,1,1,2-Tetrachloroethane	1.97	0.100	2.000	0	98.4	76.2	130				
Ethylbenzene	2.02	0.100	2.000	0	101	78	127				
m,p-Xylene	4.12	0.100	4.000	0	103	77.5	130				
o-Xylene	2.02	0.100	2.000	0	101	77.6	126				
Styrene	1.99	0.100	2.000	0	99.3	66.8	137				
Isopropylbenzene	2.02	0.100	2.000	0	101	75.9	133				
Bromoform	1.59	0.100	2.000	0	79.3	54.1	146				
1,1,2,2-Tetrachloroethane	1.91	0.100	2.000	0	95.5	68	134				
n-Propylbenzene	2.07	0.100	2.000	0	103	77.1	133				
Bromobenzene	1.96	0.100	2.000	0	98.0	71.1	131				
1,3,5-Trimethylbenzene	2.03	0.100	2.000	0	102	76.2	133				
2-Chlorotoluene	2.05	0.100	2.000	0	103	67.1	137				
4-Chlorotoluene	2.02	0.100	2.000	0	101	70.7	132				
tert-Butylbenzene	2.04	0.100	2.000	0	102	71.3	139				
1,2,3-Trichloropropane	1.75	0.100	2.000	0	87.3	70.8	132				
1,2,4-Trichlorobenzene	1.81	0.200	2.000	0	90.7	61.4	139				

Work Order: 1705064
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R35967** SampType: **LCS** Units: **µg/L** Prep Date: **5/5/2017** RunNo: **35967**
Client ID: **LCSW** Batch ID: **R35967** Analysis Date: **5/5/2017** SeqNo: **689030**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	2.14	0.100	2.000	0	107	77.4	136				
4-Isopropyltoluene	2.13	0.100	2.000	0	107	78.1	131				
1,3-Dichlorobenzene	2.10	0.100	2.000	0	105	73.5	125				
1,4-Dichlorobenzene	2.06	0.100	2.000	0	103	71.4	125				
n-Butylbenzene	2.21	0.100	2.000	0	111	69.8	138				
1,2-Dichlorobenzene	2.01	0.100	2.000	0	101	74.2	123				
1,2-Dibromo-3-chloropropane	1.53	0.100	2.000	0	76.3	53.6	155				
1,2,4-Trimethylbenzene	2.01	0.100	2.000	0	101	72.3	133				
Hexachlorobutadiene	2.13	0.400	2.000	0	107	60.9	141				
Naphthalene	1.68	0.100	2.000	0	84.2	58.2	140				
1,2,3-Trichlorobenzene	1.75	0.400	2.000	0	87.6	61.3	133				
Surr: Dibromofluoromethane	2.58		2.500		103	61.1	128				
Surr: Toluene-d8	2.61		2.500		104	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.60		2.500		104	64.7	128				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1705064**
Logged by:	**Erica Silva**	Date Received:	**5/5/2017 9:13:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 5-5-17 Page: 1 of: 1

Laboratory Project No (Internal): 1705064

Special Remarks: Provide EDD

Project Name: WA Industries

Project No: 64001

Location: 825 S. Dakota St.

Collected by: J. Shemad

Reports to (PM): Sean Trimble

Client: Environmental Partners Inc.

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

Email (PM): sean@ep-i-wa.com

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	AIR-INF	Canister / Flow Reg	5-5-17 Date / 0800 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260c		
2	AIR-EFF	Canister / Flow Reg	5-5-17 Date / 0810 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260c		
3		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	5/5/17 / 0913	x	5/5/2017 0913
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1705083

May 12, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 5/8/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

CC:
Cynthia Moon

Date: *05/12/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1705083

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1705083-001	AIR-INF	05/08/2017 7:30 AM	05/08/2017 9:34 AM
1705083-002	AIR-EFF	05/08/2017 7:40 AM	05/08/2017 9:34 AM

Case Narrative

WO#: **1705083**
Date: **5/12/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc.
Collection Date: 5/8/2017 7:30:00 AM
Project: WA Industries
Lab ID: 1705083-001
Matrix: Air
Client Sample ID: **AIR-INF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R36019 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Chloromethane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/9/2017 3:17:16 PM
Bromomethane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Chloroethane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Methylene chloride	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/9/2017 3:17:16 PM
cis-1,2-Dichloroethene	1.19	0.100		µg/L	1	5/9/2017 3:17:16 PM
Chloroform	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Benzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Trichloroethene (TCE)	31.6	2.00	D	µg/L	20	5/9/2017 5:19:03 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Dibromomethane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Toluene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Tetrachloroethene (PCE)	1.47	0.100		µg/L	1	5/9/2017 3:17:16 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/9/2017 3:17:16 PM
Chlorobenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Ethylbenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
m,p-Xylene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
o-Xylene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Styrene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Bromoform	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM

Analytical Report

Work Order: **1705083**
Date Reported: **5/12/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/8/2017 7:30:00 AM
Project: WA Industries
Lab ID: 1705083-001
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36019		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Bromobenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/9/2017 3:17:16 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/9/2017 3:17:16 PM
Naphthalene	ND	0.100		µg/L	1	5/9/2017 3:17:16 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/9/2017 3:17:16 PM
Surr: Dibromofluoromethane	93.4	61.1-128		%Rec	1	5/9/2017 3:17:16 PM
Surr: Toluene-d8	99.7	66-138		%Rec	1	5/9/2017 3:17:16 PM
Surr: 1-Bromo-4-fluorobenzene	86.5	64.7-128		%Rec	1	5/9/2017 3:17:16 PM

Analytical Report

Work Order: **1705083**
Date Reported: **5/12/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/8/2017 7:40:00 AM
Project: WA Industries
Lab ID: 1705083-002
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36019		Analyst: MW
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Chloromethane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/9/2017 1:46:21 PM
Bromomethane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Chloroethane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Methylene chloride	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/9/2017 1:46:21 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Chloroform	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Benzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Trichloroethene (TCE)	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Dibromomethane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Toluene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/9/2017 1:46:21 PM
Chlorobenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Ethylbenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
m,p-Xylene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
o-Xylene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Styrene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Bromoform	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM

Analytical Report

Work Order: **1705083**
Date Reported: **5/12/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/8/2017 7:40:00 AM
Project: WA Industries
Lab ID: 1705083-002
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36019		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Bromobenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/9/2017 1:46:21 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/9/2017 1:46:21 PM
Naphthalene	ND	0.100		µg/L	1	5/9/2017 1:46:21 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/9/2017 1:46:21 PM
Surr: Dibromofluoromethane	106	61.1-128		%Rec	1	5/9/2017 1:46:21 PM
Surr: Toluene-d8	102	66-138		%Rec	1	5/9/2017 1:46:21 PM
Surr: 1-Bromo-4-fluorobenzene	97.9	64.7-128		%Rec	1	5/9/2017 1:46:21 PM

Work Order: 1705083
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36019** SampType: **LCS** Units: **µg/L** Prep Date: **5/9/2017** RunNo: **36019**
Client ID: **LCSW** Batch ID: **R36019** Analysis Date: **5/9/2017** SeqNo: **689953**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.80	0.100	2.000	0	89.9	38.8	143				
Chloromethane	1.85	0.100	2.000	0	92.3	42.5	131				
Vinyl chloride	1.87	0.0200	2.000	0	93.5	56.2	130				
Bromomethane	1.94	0.100	2.000	0	97.1	45.4	138				
Trichlorofluoromethane	1.94	0.100	2.000	0	96.9	64.7	129				
Chloroethane	1.88	0.100	2.000	0	94.1	62.5	123				
1,1-Dichloroethene	1.82	0.100	2.000	0	91.0	60.7	146				
Methylene chloride	1.97	0.100	2.000	0	98.5	60.3	135				
trans-1,2-Dichloroethene	1.97	0.100	2.000	0	98.4	71.3	129				
Methyl tert-butyl ether (MTBE)	1.88	0.100	2.000	0	94.1	59.3	138				
1,1-Dichloroethane	1.99	0.100	2.000	0	99.5	71.3	129				
2,2-Dichloropropane	2.63	0.200	2.000	0	132	37.8	132				
cis-1,2-Dichloroethene	2.06	0.100	2.000	0	103	67.5	127				
Chloroform	2.03	0.100	2.000	0	102	70.3	123				
1,1,1-Trichloroethane (TCA)	2.00	0.100	2.000	0	100	67.9	134				
1,1-Dichloropropene	2.02	0.100	2.000	0	101	72.1	133				
Carbon tetrachloride	2.00	0.100	2.000	0	100	64.4	133				
1,2-Dichloroethane (EDC)	1.98	0.100	2.000	0	99.2	65.8	126				
Benzene	2.09	0.100	2.000	0	104	67.1	132				
Trichloroethene (TCE)	2.00	0.100	2.000	0	100	71.9	130				
1,2-Dichloropropane	2.10	0.100	2.000	0	105	71.9	131				
Dichlorobromomethane	2.09	0.100	2.000	0	104	70	130				
Dibromomethane	2.09	0.100	2.000	0	104	74.2	125				
cis-1,3-Dichloropropene	2.15	0.100	2.000	0	108	62.8	135				
Toluene	2.02	0.100	2.000	0	101	73.6	127				
trans-1,3-Dichloropropene	2.18	0.100	2.000	0	109	58.1	138				
1,1,2-Trichloroethane	2.14	0.100	2.000	0	107	65.4	128				
1,3-Dichloropropane	2.14	0.100	2.000	0	107	71.9	131				
Tetrachloroethene (PCE)	2.04	0.100	2.000	0	102	52.4	140				
Dibromochloromethane	2.15	0.100	2.000	0	107	68.7	139				
1,2-Dibromoethane (EDB)	2.13	0.00100	2.000	0	107	71.2	129				

Work Order: 1705083
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36019** SampType: **LCS** Units: **µg/L** Prep Date: **5/9/2017** RunNo: **36019**
Client ID: **LCSW** Batch ID: **R36019** Analysis Date: **5/9/2017** SeqNo: **689953**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	2.03	0.100	2.000	0	101	77.2	122				
1,1,1,2-Tetrachloroethane	2.07	0.100	2.000	0	104	76.2	130				
Ethylbenzene	2.05	0.100	2.000	0	102	78	127				
m,p-Xylene	4.12	0.100	4.000	0	103	77.5	130				
o-Xylene	1.99	0.100	2.000	0	99.4	77.6	126				
Styrene	2.01	0.100	2.000	0	100	66.8	137				
Isopropylbenzene	2.01	0.100	2.000	0	101	75.9	133				
Bromoform	2.11	0.100	2.000	0	105	54.1	146				
1,1,2,2-Tetrachloroethane	2.18	0.100	2.000	0	109	68	134				
n-Propylbenzene	2.03	0.100	2.000	0	102	77.1	133				
Bromobenzene	2.07	0.100	2.000	0	103	71.1	131				
1,3,5-Trimethylbenzene	2.01	0.100	2.000	0	100	76.2	133				
2-Chlorotoluene	2.04	0.100	2.000	0	102	67.1	137				
4-Chlorotoluene	2.04	0.100	2.000	0	102	70.7	132				
tert-Butylbenzene	2.01	0.100	2.000	0	100	71.3	139				
1,2,3-Trichloropropane	2.22	0.100	2.000	0	111	70.8	132				
1,2,4-Trichlorobenzene	2.43	0.200	2.000	0	121	61.4	139				
sec-Butylbenzene	2.04	0.100	2.000	0	102	77.4	136				
4-Isopropyltoluene	2.02	0.100	2.000	0	101	78.1	131				
1,3-Dichlorobenzene	2.10	0.100	2.000	0	105	73.5	125				
1,4-Dichlorobenzene	2.13	0.100	2.000	0	106	71.4	125				
n-Butylbenzene	2.21	0.100	2.000	0	110	69.8	138				
1,2-Dichlorobenzene	2.17	0.100	2.000	0	109	74.2	123				
1,2-Dibromo-3-chloropropane	2.33	0.100	2.000	0	116	53.6	155				
1,2,4-Trimethylbenzene	2.05	0.100	2.000	0	102	72.3	133				
Hexachlorobutadiene	2.23	0.400	2.000	0	111	60.9	141				
Naphthalene	2.59	0.100	2.000	0	129	58.2	140				
1,2,3-Trichlorobenzene	2.44	0.400	2.000	0	122	61.3	133				
Surr: Dibromofluoromethane	2.32		2.500		93.0	61.1	128				
Surr: Toluene-d8	2.63		2.500		105	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.67		2.500		107	64.7	128				

Work Order: 1705083
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36019**	SampType: **LCS**			Units: **µg/L**		Prep Date: **5/9/2017**		RunNo: **36019**			
Client ID: **LCSW**	Batch ID: **R36019**					Analysis Date: **5/9/2017**		SeqNo: **689953**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **MB-R36019**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **5/9/2017**		RunNo: **36019**			
Client ID: **MBLKW**	Batch ID: **R36019**					Analysis Date: **5/9/2017**		SeqNo: **689954**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									

Work Order: 1705083
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36019** SampType: **MBLK** Units: **µg/L** Prep Date: **5/9/2017** RunNo: **36019**
Client ID: **MBLKW** Batch ID: **R36019** Analysis Date: **5/9/2017** SeqNo: **689954**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									

Work Order: 1705083
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36019** SampType: **MBLK** Units: **µg/L** Prep Date: **5/9/2017** RunNo: **36019**
Client ID: **MBLKW** Batch ID: **R36019** Analysis Date: **5/9/2017** SeqNo: **689954**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.37		2.500		94.6	61.1	128				
Surr: Toluene-d8	2.45		2.500		98.1	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.14		2.500		85.7	64.7	128				

Sample ID **1705083-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/9/2017** RunNo: **36019**
Client ID: **AIR-EFF** Batch ID: **R36019** Analysis Date: **5/9/2017** SeqNo: **689947**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	

Work Order: 1705083
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705083-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/9/2017** RunNo: **36019**
Client ID: **AIR-EFF** Batch ID: **R36019** Analysis Date: **5/9/2017** SeqNo: **689947**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	ND	0.100						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Dichlorobromomethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.00100						0		30	
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	

Work Order: 1705083
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705083-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/9/2017** RunNo: **36019**
Client ID: **AIR-EFF** Batch ID: **R36019** Analysis Date: **5/9/2017** SeqNo: **689947**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.32		2.500		92.7	61.1	128		0		
Surr: Toluene-d8	2.41		2.500		96.5	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.21		2.500		88.2	64.7	128		0		

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1705083**
Logged by:	**Erica Silva**	Date Received:	**5/8/2017 9:34:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Date: 5/8/17 Page: 1 of: 1

Laboratory Project No (Internal): 1705083

Special Remarks: Provide EDD

Project Name: WA Industries

Project No: 64001

Location: 825 S. Dakota St.

Collected by: J. Sherrod

Reports to (PM): Sean Trimble

Email (PM): seant@epi-wa.com

Client: Environmental Partners Inc.

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	AIR-INF	Canister / Flow Reg	5/8/17 Date / 0730 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260c		
2	AIR-EFF	Canister / Flow Reg	5/8/17 Date / 0740 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs b 8260c		
3		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	5/8/17 / 0934	x	5/8/2017 0934
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1705109

May 15, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 5/10/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

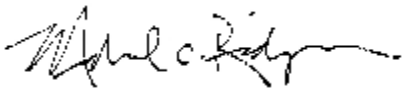
This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,



Mike Ridgeway
Laboratory Director

Date: *05/15/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1705109

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1705109-001	AIR-EFF	05/10/2017 8:40 AM	05/10/2017 10:00 AM
1705109-002	AIR-INF	05/10/2017 8:30 AM	05/10/2017 10:00 AM

Case Narrative

WO#: **1705109**
Date: **5/15/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1705109**
Date Reported: **5/15/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/10/2017 8:40:00 AM
Project: WA Industries
Lab ID: 1705109-001
Matrix: Air
Client Sample ID: **AIR-EFF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R36129 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Chloromethane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/11/2017 2:37:40 PM
Bromomethane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Chloroethane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Methylene chloride	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/11/2017 2:37:40 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Chloroform	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Benzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Trichloroethene (TCE)	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Dibromomethane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Toluene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/11/2017 2:37:40 PM
Chlorobenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Ethylbenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
m,p-Xylene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
o-Xylene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Styrene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Bromoform	ND	0.100	Q	µg/L	1	5/11/2017 2:37:40 PM

Original

Analytical Report

Work Order: **1705109**
Date Reported: **5/15/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/10/2017 8:40:00 AM
Project: WA Industries
Lab ID: 1705109-001
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36129		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Bromobenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/11/2017 2:37:40 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,2-Dibromo-3-chloropropane	ND	0.100	Q	µg/L	1	5/11/2017 2:37:40 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/11/2017 2:37:40 PM
Naphthalene	ND	0.100		µg/L	1	5/11/2017 2:37:40 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/11/2017 2:37:40 PM
Surr: Dibromofluoromethane	94.0	61.1-128		%Rec	1	5/11/2017 2:37:40 PM
Surr: Toluene-d8	98.9	66-138		%Rec	1	5/11/2017 2:37:40 PM
Surr: 1-Bromo-4-fluorobenzene	95.5	64.7-128		%Rec	1	5/11/2017 2:37:40 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Analytical Report

Work Order: **1705109**
Date Reported: **5/15/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/10/2017 8:30:00 AM
Project: WA Industries
Lab ID: 1705109-002
Matrix: Air
Client Sample ID: **AIR-INF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R36129 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Chloromethane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/11/2017 4:03:10 PM
Bromomethane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Chloroethane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Methylene chloride	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/11/2017 4:03:10 PM
cis-1,2-Dichloroethene	0.828	0.100		µg/L	1	5/11/2017 4:03:10 PM
Chloroform	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Benzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Trichloroethene (TCE)	28.0	2.00	D	µg/L	20	5/11/2017 3:34:41 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Dibromomethane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Toluene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Tetrachloroethene (PCE)	1.28	0.100		µg/L	1	5/11/2017 4:03:10 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/11/2017 4:03:10 PM
Chlorobenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Ethylbenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
m,p-Xylene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
o-Xylene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Styrene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Bromoform	ND	0.100	Q	µg/L	1	5/11/2017 4:03:10 PM

Original

Analytical Report

Work Order: **1705109**
Date Reported: **5/15/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/10/2017 8:30:00 AM
Project: WA Industries
Lab ID: 1705109-002
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36129		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Bromobenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/11/2017 4:03:10 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,2-Dibromo-3-chloropropane	ND	0.100	Q	µg/L	1	5/11/2017 4:03:10 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/11/2017 4:03:10 PM
Naphthalene	ND	0.100		µg/L	1	5/11/2017 4:03:10 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/11/2017 4:03:10 PM
Surr: Dibromofluoromethane	95.8	61.1-128		%Rec	1	5/11/2017 4:03:10 PM
Surr: Toluene-d8	101	66-138		%Rec	1	5/11/2017 4:03:10 PM
Surr: 1-Bromo-4-fluorobenzene	99.6	64.7-128		%Rec	1	5/11/2017 4:03:10 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1705109
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36129** SampType: **MBLK** Units: **µg/L** Prep Date: **5/11/2017** RunNo: **36129**
Client ID: **MBLKW** Batch ID: **R36129** Analysis Date: **5/11/2017** SeqNo: **691934**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									

Work Order: 1705109
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36129** SampType: **MBLK** Units: **µg/L** Prep Date: **5/11/2017** RunNo: **36129**
Client ID: **MBLKW** Batch ID: **R36129** Analysis Date: **5/11/2017** SeqNo: **691934**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									Q
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									Q
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.35		2.500		94.0	61.1	128				
Surr: Toluene-d8	3.17		2.500		127	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.43		2.500		97.4	64.7	128				

Work Order: 1705109
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36129** SampType: **MBLK** Units: **µg/L** Prep Date: **5/11/2017** RunNo: **36129**
Client ID: **MBLKW** Batch ID: **R36129** Analysis Date: **5/11/2017** SeqNo: **691934**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1705109-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/11/2017** RunNo: **36129**
Client ID: **AIR-EFF** Batch ID: **R36129** Analysis Date: **5/11/2017** SeqNo: **691928**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.100						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Dichlorobromomethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	

Work Order: 1705109
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705109-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/11/2017** RunNo: **36129**
Client ID: **AIR-EFF** Batch ID: **R36129** Analysis Date: **5/11/2017** SeqNo: **691928**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.00100						0		30	
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	Q
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	Q

Work Order: 1705109
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705109-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/11/2017** RunNo: **36129**
Client ID: **AIR-EFF** Batch ID: **R36129** Analysis Date: **5/11/2017** SeqNo: **691928**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.38		2.500		95.0	61.1	128		0		
Surr: Toluene-d8	2.48		2.500		99.2	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.41		2.500		96.3	64.7	128		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-R36129** SampType: **LCS** Units: **µg/L** Prep Date: **5/11/2017** RunNo: **36129**
Client ID: **LCSW** Batch ID: **R36129** Analysis Date: **5/11/2017** SeqNo: **691933**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.57	0.100	2.000	0	78.3	38.8	143				
Chloromethane	1.69	0.100	2.000	0	84.7	42.5	131				
Vinyl chloride	1.77	0.0200	2.000	0	88.3	56.2	130				
Bromomethane	1.82	0.100	2.000	0	91.1	45.4	138				
Trichlorofluoromethane	1.85	0.100	2.000	0	92.6	64.7	129				
Chloroethane	1.81	0.100	2.000	0	90.5	62.5	123				
1,1-Dichloroethene	2.01	0.100	2.000	0	101	60.7	146				
Methylene chloride	2.06	0.100	2.000	0	103	60.3	135				
trans-1,2-Dichloroethene	2.07	0.100	2.000	0	104	71.3	129				
Methyl tert-butyl ether (MTBE)	1.92	0.100	2.000	0	96.2	59.3	138				
1,1-Dichloroethane	2.01	0.100	2.000	0	101	71.3	129				
2,2-Dichloropropane	4.02	0.200	2.000	0	201	37.8	132				S
cis-1,2-Dichloroethene	1.97	0.100	2.000	0	98.6	67.5	127				
Chloroform	1.97	0.100	2.000	0	98.7	70.3	123				
1,1,1-Trichloroethane (TCA)	1.98	0.100	2.000	0	99.2	67.9	134				
1,1-Dichloropropene	2.00	0.100	2.000	0	100	72.1	133				
Carbon tetrachloride	2.04	0.100	2.000	0	102	64.4	133				

Work Order: 1705109
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36129** SampType: **LCS** Units: **µg/L** Prep Date: **5/11/2017** RunNo: **36129**
Client ID: **LCSW** Batch ID: **R36129** Analysis Date: **5/11/2017** SeqNo: **691933**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane (EDC)	2.19	0.100	2.000	0	109	65.8	126				
Benzene	2.13	0.100	2.000	0	106	67.1	132				
Trichloroethene (TCE)	2.03	0.100	2.000	0	102	71.9	130				
1,2-Dichloropropane	2.08	0.100	2.000	0	104	71.9	131				
Dichlorobromomethane	1.97	0.100	2.000	0	98.3	70	130				
Dibromomethane	1.95	0.100	2.000	0	97.5	74.2	125				
cis-1,3-Dichloropropene	2.36	0.100	2.000	0	118	62.8	135				
Toluene	2.10	0.100	2.000	0	105	73.6	127				
trans-1,3-Dichloropropene	2.26	0.100	2.000	0	113	58.1	138				
1,1,2-Trichloroethane	1.92	0.100	2.000	0	96.1	65.4	128				
1,3-Dichloropropane	1.92	0.100	2.000	0	95.8	71.9	131				
Tetrachloroethene (PCE)	2.13	0.100	2.000	0	107	52.4	140				
Dibromochloromethane	2.06	0.100	2.000	0	103	68.7	139				
1,2-Dibromoethane (EDB)	1.85	0.00100	2.000	0	92.4	71.2	129				
Chlorobenzene	2.07	0.100	2.000	0	104	77.2	122				
1,1,1,2-Tetrachloroethane	2.06	0.100	2.000	0	103	76.2	130				
Ethylbenzene	2.11	0.100	2.000	0	105	78	127				
m,p-Xylene	4.26	0.100	4.000	0	106	77.5	130				
o-Xylene	2.08	0.100	2.000	0	104	77.6	126				
Styrene	2.07	0.100	2.000	0	104	66.8	137				
Isopropylbenzene	2.11	0.100	2.000	0	106	75.9	133				
Bromoform	1.72	0.100	2.000	0	86.2	54.1	146				
1,1,2,2-Tetrachloroethane	1.92	0.100	2.000	0	96.1	68	134				
n-Propylbenzene	2.14	0.100	2.000	0	107	77.1	133				
Bromobenzene	2.03	0.100	2.000	0	101	71.1	131				
1,3,5-Trimethylbenzene	2.11	0.100	2.000	0	105	76.2	133				
2-Chlorotoluene	2.12	0.100	2.000	0	106	67.1	137				
4-Chlorotoluene	2.12	0.100	2.000	0	106	70.7	132				
tert-Butylbenzene	2.12	0.100	2.000	0	106	71.3	139				
1,2,3-Trichloropropane	1.79	0.100	2.000	0	89.7	70.8	132				
1,2,4-Trichlorobenzene	2.05	0.200	2.000	0	103	61.4	139				

Work Order: 1705109
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36129** SampType: **LCS** Units: **µg/L** Prep Date: **5/11/2017** RunNo: **36129**
Client ID: **LCSW** Batch ID: **R36129** Analysis Date: **5/11/2017** SeqNo: **691933**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	2.21	0.100	2.000	0	110	77.4	136				
4-Isopropyltoluene	2.22	0.100	2.000	0	111	78.1	131				
1,3-Dichlorobenzene	2.16	0.100	2.000	0	108	73.5	125				
1,4-Dichlorobenzene	2.13	0.100	2.000	0	107	71.4	125				
n-Butylbenzene	2.32	0.100	2.000	0	116	69.8	138				
1,2-Dichlorobenzene	2.07	0.100	2.000	0	104	74.2	123				
1,2-Dibromo-3-chloropropane	1.72	0.100	2.000	0	86.2	53.6	155				
1,2,4-Trimethylbenzene	2.12	0.100	2.000	0	106	72.3	133				
Hexachlorobutadiene	2.32	0.400	2.000	0	116	60.9	141				
Naphthalene	2.24	0.100	2.000	0	112	58.2	140				
1,2,3-Trichlorobenzene	1.96	0.400	2.000	0	98.0	61.3	133				
Surr: Dibromofluoromethane	2.53		2.500		101	61.1	128				
Surr: Toluene-d8	2.59		2.500		104	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.65		2.500		106	64.7	128				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1705109**
Logged by:	**Erica Silva**	Date Received:	**5/10/2017 10:00:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Original

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Date: 5/10/17 Page: 1 of: 1

Laboratory Project No (Internal): 1705109

Special Remarks: Provide EDD

Project Name: WA Industries

Project No: 64001

Location: 825 S Dakota St.

Collected by: J Sherrod

Reports to (PM): Sean Trimble

Client: EPI

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

Email (PM): seant@epi-wa.com

Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1 AIR-EFF		5/10/17 0840	S	TB	1L	5 min					VOCs by 8260c		
2 AIR-INF		5/10/17 0830	S	TB	1L	5 min					VOCs by 8260c		
3													
4													
5													

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	5/10/17 1000	x	5/10/2017 1000
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:
- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1705172

May 22, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 5/15/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *05/22/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1705172

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1705172-001	AIR-INF	05/15/2017 6:50 AM	05/15/2017 2:25 PM
1705172-002	AIR-EFF	05/15/2017 7:00 AM	05/15/2017 2:25 PM

Case Narrative

WO#: **1705172**
Date: **5/22/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 5/15/2017 6:50:00 AM
Project: WA Industries
Lab ID: 1705172-001 **Matrix:** Air
Client Sample ID: AIR-INF

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36235		Analyst: NG
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Chloromethane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/18/2017 2:15:24 PM
Bromomethane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Chloroethane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Methylene chloride	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
2,2-Dichloropropane	ND	0.200	Q	µg/L	1	5/18/2017 2:15:24 PM
cis-1,2-Dichloroethene	0.569	0.100		µg/L	1	5/18/2017 2:15:24 PM
Chloroform	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Benzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Trichloroethene (TCE)	17.2	2.00	D	µg/L	20	5/17/2017 3:17:28 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Dibromomethane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Toluene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Tetrachloroethene (PCE)	0.802	0.100		µg/L	1	5/18/2017 2:15:24 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/18/2017 2:15:24 PM
Chlorobenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Ethylbenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
m,p-Xylene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
o-Xylene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Styrene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Bromoform	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM

Analytical Report

Work Order: **1705172**
Date Reported: **5/22/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/15/2017 6:50:00 AM
Project: WA Industries
Lab ID: 1705172-001
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36235		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Bromobenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/18/2017 2:15:24 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/18/2017 2:15:24 PM
Naphthalene	ND	0.100		µg/L	1	5/18/2017 2:15:24 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/18/2017 2:15:24 PM
Surr: Dibromofluoromethane	95.3	61.1-128		%Rec	1	5/18/2017 2:15:24 PM
Surr: Toluene-d8	100	66-138		%Rec	1	5/18/2017 2:15:24 PM
Surr: 1-Bromo-4-fluorobenzene	95.7	64.7-128		%Rec	1	5/18/2017 2:15:24 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Client: Environmental Partners, Inc. **Collection Date:** 5/15/2017 7:00:00 AM
Project: WA Industries
Lab ID: 1705172-002 **Matrix:** Air
Client Sample ID: AIR-EFF

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36235		Analyst: NG
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Chloromethane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/17/2017 12:26:43 PM
Bromomethane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Chloroethane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Methylene chloride	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/17/2017 12:26:43 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Chloroform	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Benzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Trichloroethene (TCE)	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Dibromomethane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Toluene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/17/2017 12:26:43 PM
Chlorobenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Ethylbenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
m,p-Xylene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
o-Xylene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Styrene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Bromoform	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM

Analytical Report

Work Order: **1705172**
Date Reported: **5/22/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/15/2017 7:00:00 AM
Project: WA Industries
Lab ID: 1705172-002
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36235		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Bromobenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/17/2017 12:26:43 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,2-Dibromo-3-chloropropane	ND	0.100	Q	µg/L	1	5/17/2017 12:26:43 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/17/2017 12:26:43 PM
Naphthalene	ND	0.100		µg/L	1	5/17/2017 12:26:43 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/17/2017 12:26:43 PM
Surr: Dibromofluoromethane	96.0	61.1-128		%Rec	1	5/17/2017 12:26:43 PM
Surr: Toluene-d8	97.8	66-138		%Rec	1	5/17/2017 12:26:43 PM
Surr: 1-Bromo-4-fluorobenzene	93.5	64.7-128		%Rec	1	5/17/2017 12:26:43 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1705172
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36235** SampType: **LCS** Units: **µg/L** Prep Date: **5/17/2017** RunNo: **36235**
Client ID: **LCSW** Batch ID: **R36235** Analysis Date: **5/17/2017** SeqNo: **694117**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	3.63	0.100	2.000	0	181	38.8	143				S
Chloromethane	2.80	0.100	2.000	0	140	42.5	131				S
Vinyl chloride	2.50	0.0200	2.000	0	125	56.2	130				
Bromomethane	2.28	0.100	2.000	0	114	45.4	138				
Trichlorofluoromethane	2.18	0.100	2.000	0	109	64.7	129				
Chloroethane	2.26	0.100	2.000	0	113	62.5	123				
1,1-Dichloroethene	2.30	0.100	2.000	0	115	60.7	146				
Methylene chloride	1.87	0.100	2.000	0	93.4	60.3	135				
trans-1,2-Dichloroethene	1.92	0.100	2.000	0	96.1	71.3	129				
Methyl tert-butyl ether (MTBE)	1.80	0.100	2.000	0	90.2	59.3	138				
1,1-Dichloroethane	2.00	0.100	2.000	0	99.8	71.3	129				
2,2-Dichloropropane	2.17	0.200	2.000	0	109	37.8	132				
cis-1,2-Dichloroethene	1.99	0.100	2.000	0	99.5	67.5	127				
Chloroform	1.95	0.100	2.000	0	97.5	70.3	123				
1,1,1-Trichloroethane (TCA)	1.98	0.100	2.000	0	98.8	67.9	134				
1,1-Dichloropropene	2.09	0.100	2.000	0	105	72.1	133				
Carbon tetrachloride	1.88	0.100	2.000	0	93.9	64.4	133				
1,2-Dichloroethane (EDC)	1.98	0.100	2.000	0	98.8	65.8	126				
Benzene	2.03	0.100	2.000	0	102	67.1	132				
Trichloroethene (TCE)	1.92	0.100	2.000	0	96.0	71.9	130				
1,2-Dichloropropane	1.88	0.100	2.000	0	94.0	71.9	131				
Dichlorobromomethane	1.80	0.100	2.000	0	90.0	70	130				
Dibromomethane	1.95	0.100	2.000	0	97.7	74.2	125				
cis-1,3-Dichloropropene	2.04	0.100	2.000	0	102	62.8	135				
Toluene	2.11	0.100	2.000	0	105	73.6	127				
trans-1,3-Dichloropropene	1.95	0.100	2.000	0	97.6	58.1	138				
1,1,2-Trichloroethane	1.91	0.100	2.000	0	95.3	65.4	128				
1,3-Dichloropropane	1.92	0.100	2.000	0	96.1	71.9	131				
Tetrachloroethene (PCE)	2.01	0.100	2.000	0	100	52.4	140				
Dibromochloromethane	1.94	0.100	2.000	0	96.9	68.7	139				
1,2-Dibromoethane (EDB)	1.90	0.00100	2.000	0	94.8	71.2	129				

Work Order: 1705172
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36235** SampType: **LCS** Units: **µg/L** Prep Date: **5/17/2017** RunNo: **36235**
Client ID: **LCSW** Batch ID: **R36235** Analysis Date: **5/17/2017** SeqNo: **694117**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	2.00	0.100	2.000	0	100	77.2	122				
1,1,1,2-Tetrachloroethane	1.97	0.100	2.000	0	98.6	76.2	130				
Ethylbenzene	2.09	0.100	2.000	0	105	78	127				
m,p-Xylene	4.26	0.100	4.000	0	107	77.5	130				
o-Xylene	2.08	0.100	2.000	0	104	77.6	126				
Styrene	2.03	0.100	2.000	0	102	66.8	137				
Isopropylbenzene	2.07	0.100	2.000	0	104	75.9	133				
Bromoform	1.67	0.100	2.000	0	83.6	54.1	146				
1,1,2,2-Tetrachloroethane	1.90	0.100	2.000	0	94.9	68	134				
n-Propylbenzene	2.06	0.100	2.000	0	103	77.1	133				
Bromobenzene	2.00	0.100	2.000	0	100	71.1	131				
1,3,5-Trimethylbenzene	2.04	0.100	2.000	0	102	76.2	133				
2-Chlorotoluene	2.06	0.100	2.000	0	103	67.1	137				
4-Chlorotoluene	2.05	0.100	2.000	0	102	70.7	132				
tert-Butylbenzene	2.05	0.100	2.000	0	102	71.3	139				
1,2,3-Trichloropropane	1.87	0.100	2.000	0	93.7	70.8	132				
1,2,4-Trichlorobenzene	2.01	0.200	2.000	0	101	61.4	139				
sec-Butylbenzene	2.14	0.100	2.000	0	107	77.4	136				
4-Isopropyltoluene	2.12	0.100	2.000	0	106	78.1	131				
1,3-Dichlorobenzene	2.07	0.100	2.000	0	103	73.5	125				
1,4-Dichlorobenzene	2.05	0.100	2.000	0	103	71.4	125				
n-Butylbenzene	2.15	0.100	2.000	0	107	69.8	138				
1,2-Dichlorobenzene	2.04	0.100	2.000	0	102	74.2	123				
1,2-Dibromo-3-chloropropane	1.70	0.100	2.000	0	85.1	53.6	155				
1,2,4-Trimethylbenzene	2.03	0.100	2.000	0	102	72.3	133				
Hexachlorobutadiene	2.07	0.400	2.000	0	103	60.9	141				
Naphthalene	2.02	0.100	2.000	0	101	58.2	140				
1,2,3-Trichlorobenzene	1.98	0.400	2.000	0	98.8	61.3	133				
Surr: Dibromofluoromethane	2.47		2.500		98.9	61.1	128				
Surr: Toluene-d8	2.55		2.500		102	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.62		2.500		105	64.7	128				

Work Order: 1705172
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**LCS-R36235**	SampType: **LCS**		Units: **µg/L**		Prep Date: **5/17/2017**		RunNo: **36235**			
Client ID:	**LCSW**	Batch ID: **R36235**				Analysis Date: **5/17/2017**		SeqNo: **694117**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample ID	**MB-R36235**	SampType: **MBLK**		Units: **µg/L**		Prep Date: **5/17/2017**		RunNo: **36235**			
Client ID:	**MBLKW**	Batch ID: **R36235**				Analysis Date: **5/17/2017**		SeqNo: **694134**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									

Work Order: 1705172
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36235** SampType: **MBLK** Units: **µg/L** Prep Date: **5/17/2017** RunNo: **36235**
Client ID: **MBLKW** Batch ID: **R36235** Analysis Date: **5/17/2017** SeqNo: **694134**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.100									
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									Q

Work Order: 1705172
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36235** SampType: **MBLK** Units: **µg/L** Prep Date: **5/17/2017** RunNo: **36235**
Client ID: **MBLKW** Batch ID: **R36235** Analysis Date: **5/17/2017** SeqNo: **694134**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.38		2.500		95.3	61.1	128				
Surr: Toluene-d8	2.45		2.500		98.1	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.32		2.500		92.7	64.7	128				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1705172-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/17/2017** RunNo: **36235**
Client ID: **AIR-EFF** Batch ID: **R36235** Analysis Date: **5/17/2017** SeqNo: **694109**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	

Work Order: 1705172
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705172-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/17/2017** RunNo: **36235**
Client ID: **AIR-EFF** Batch ID: **R36235** Analysis Date: **5/17/2017** SeqNo: **694109**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.100						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Dichlorobromomethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.00100						0		30	
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	

Work Order: 1705172
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705172-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/17/2017** RunNo: **36235**
Client ID: **AIR-EFF** Batch ID: **R36235** Analysis Date: **5/17/2017** SeqNo: **694109**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	Q
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.40		2.500		96.0	61.1	128		0		
Surr: Toluene-d8	2.47		2.500		99.0	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.44		2.500		97.7	64.7	128		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1705172**
Logged by:	**Erica Silva**	Date Received:	**5/15/2017 2:25:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 5/15/17 Page: 1 of: 1

Laboratory Project No (Internal): 1705172

Special Remarks: Provide EDD

Client: Environmental Partners Inc.

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

Project Name: WA Industries

Project No: 64001

Location: 825 S. Dakota St.

Collected by: J. Sherrod

Reports to (PM): Sean Trimble

Email (PM): seant@epi-wa.com

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	AIR-INF	Canister / Flow Reg.	5/15/17 Date / 0650 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260c		
2	AIR-EFF	Canister / Flow Reg.	5/15/17 Date / 0700 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260c		
3		Canister / Flow Reg.	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg.	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg.	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	5/15/17 1425	x [signature]	5/15/2017 1425
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1705242

May 23, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 5/19/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *05/23/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1705242

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1705242-001	AIR-INF	05/19/2017 11:30 AM	05/19/2017 12:57 PM
1705242-002	AIR-EFF	05/19/2017 11:40 AM	05/19/2017 12:57 PM

Case Narrative

WO#: **1705242**

Date: **5/23/2017**

CLIENT: Environmental Partners, Inc.

Project: WA Industries

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc.
Collection Date: 5/19/2017 11:30:00 AM
Project: WA Industries
Lab ID: 1705242-001
Matrix: Air
Client Sample ID: **AIR-INF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R36293 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Chloromethane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/19/2017 5:28:46 PM
Bromomethane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Chloroethane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Methylene chloride	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
2,2-Dichloropropane	ND	0.200	Q	µg/L	1	5/19/2017 5:28:46 PM
cis-1,2-Dichloroethene	0.646	0.100		µg/L	1	5/19/2017 5:28:46 PM
Chloroform	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Benzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Trichloroethene (TCE)	19.1	2.00	D	µg/L	20	5/19/2017 4:59:50 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Dibromomethane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Toluene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Tetrachloroethene (PCE)	0.938	0.100		µg/L	1	5/19/2017 5:28:46 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/19/2017 5:28:46 PM
Chlorobenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Ethylbenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
m,p-Xylene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
o-Xylene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Styrene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Bromoform	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM

Analytical Report

Work Order: **1705242**
Date Reported: **5/23/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/19/2017 11:30:00 AM
Project: WA Industries
Lab ID: 1705242-001
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36293		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Bromobenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/19/2017 5:28:46 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/19/2017 5:28:46 PM
Naphthalene	ND	0.100		µg/L	1	5/19/2017 5:28:46 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/19/2017 5:28:46 PM
Surr: Dibromofluoromethane	99.2	61.1-128		%Rec	1	5/19/2017 5:28:46 PM
Surr: Toluene-d8	99.3	66-138		%Rec	1	5/19/2017 5:28:46 PM
Surr: 1-Bromo-4-fluorobenzene	102	64.7-128		%Rec	1	5/19/2017 5:28:46 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Client: Environmental Partners, Inc. **Collection Date:** 5/19/2017 11:40:00 AM
Project: WA Industries
Lab ID: 1705242-002 **Matrix:** Air
Client Sample ID: **AIR-EFF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R36293 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Chloromethane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Vinyl chloride	ND	0.0200		µg/L	1	5/19/2017 4:02:02 PM
Bromomethane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Chloroethane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Methylene chloride	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
2,2-Dichloropropane	ND	0.200	Q	µg/L	1	5/19/2017 4:02:02 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Chloroform	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Carbon tetrachloride	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Benzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Trichloroethene (TCE)	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Dichlorobromomethane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Dibromomethane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Toluene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Dibromochloromethane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/19/2017 4:02:02 PM
Chlorobenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Ethylbenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
m,p-Xylene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
o-Xylene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Styrene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Isopropylbenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Bromoform	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM

Analytical Report

Work Order: **1705242**
Date Reported: **5/23/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/19/2017 11:40:00 AM
Project: WA Industries
Lab ID: 1705242-002
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36293		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
n-Propylbenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Bromobenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
2-Chlorotoluene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
4-Chlorotoluene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
tert-Butylbenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/19/2017 4:02:02 PM
sec-Butylbenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
n-Butylbenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/19/2017 4:02:02 PM
Naphthalene	ND	0.100		µg/L	1	5/19/2017 4:02:02 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/19/2017 4:02:02 PM
Surr: Dibromofluoromethane	98.7	61.1-128		%Rec	1	5/19/2017 4:02:02 PM
Surr: Toluene-d8	98.5	66-138		%Rec	1	5/19/2017 4:02:02 PM
Surr: 1-Bromo-4-fluorobenzene	98.5	64.7-128		%Rec	1	5/19/2017 4:02:02 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1705242
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705242-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/19/2017** RunNo: **36293**
Client ID: **AIR-EFF** Batch ID: **R36293** Analysis Date: **5/19/2017** SeqNo: **695543**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	Q
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.100						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Dichlorobromomethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.00100						0		30	

Work Order: 1705242
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705242-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/19/2017** RunNo: **36293**
Client ID: **AIR-EFF** Batch ID: **R36293** Analysis Date: **5/19/2017** SeqNo: **695543**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.51		2.500		101	61.1	128		0		
Surr: Toluene-d8	2.46		2.500		98.4	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.55		2.500		102	64.7	128		0		

Work Order: 1705242
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705242-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/19/2017** RunNo: **36293**
Client ID: **AIR-EFF** Batch ID: **R36293** Analysis Date: **5/19/2017** SeqNo: **695543**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **MB-R36293** SampType: **MBLK** Units: **µg/L** Prep Date: **5/19/2017** RunNo: **36293**
Client ID: **MBLKW** Batch ID: **R36293** Analysis Date: **5/19/2017** SeqNo: **695547**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									Q
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									

Work Order: 1705242
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36293** SampType: **MBLK** Units: **µg/L** Prep Date: **5/19/2017** RunNo: **36293**
Client ID: **MBLKW** Batch ID: **R36293** Analysis Date: **5/19/2017** SeqNo: **695547**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.100									
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									

Work Order: 1705242
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36293** SampType: **MBLK** Units: **µg/L** Prep Date: **5/19/2017** RunNo: **36293**
Client ID: **MBLKW** Batch ID: **R36293** Analysis Date: **5/19/2017** SeqNo: **695547**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.51		2.500		100	61.1	128				
Surr: Toluene-d8	2.47		2.500		98.7	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.50		2.500		100	64.7	128				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-R36293** SampType: **LCS** Units: **µg/L** Prep Date: **5/19/2017** RunNo: **36293**
Client ID: **LCSW** Batch ID: **R36293** Analysis Date: **5/19/2017** SeqNo: **695546**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	2.07	0.100	2.000	0	104	38.8	143				
Chloromethane	1.99	0.100	2.000	0	99.3	42.5	131				
Vinyl chloride	1.92	0.0200	2.000	0	95.9	56.2	130				
Bromomethane	1.91	0.100	2.000	0	95.5	45.4	138				
Trichlorofluoromethane	1.94	0.100	2.000	0	96.8	64.7	129				
Chloroethane	1.89	0.100	2.000	0	94.6	62.5	123				
1,1-Dichloroethene	1.94	0.100	2.000	0	96.8	60.7	146				
Methylene chloride	2.03	0.100	2.000	0	102	60.3	135				
trans-1,2-Dichloroethene	1.91	0.100	2.000	0	95.7	71.3	129				
Methyl tert-butyl ether (MTBE)	2.21	0.100	2.000	0	110	59.3	138				
1,1-Dichloroethane	1.93	0.100	2.000	0	96.4	71.3	129				
2,2-Dichloropropane	2.37	0.200	2.000	0	118	37.8	132				
cis-1,2-Dichloroethene	1.97	0.100	2.000	0	98.7	67.5	127				
Chloroform	1.99	0.100	2.000	0	99.3	70.3	123				
1,1,1-Trichloroethane (TCA)	1.88	0.100	2.000	0	94.2	67.9	134				
1,1-Dichloropropene	2.00	0.100	2.000	0	99.8	72.1	133				
Carbon tetrachloride	1.79	0.100	2.000	0	89.5	64.4	133				

Work Order: 1705242
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36293** SampType: **LCS** Units: **µg/L** Prep Date: **5/19/2017** RunNo: **36293**
Client ID: **LCSW** Batch ID: **R36293** Analysis Date: **5/19/2017** SeqNo: **695546**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane (EDC)	2.11	0.100	2.000	0	106	65.8	126				
Benzene	1.98	0.100	2.000	0	98.8	67.1	132				
Trichloroethene (TCE)	1.91	0.100	2.000	0	95.7	71.9	130				
1,2-Dichloropropane	2.01	0.100	2.000	0	100	71.9	131				
Dichlorobromomethane	1.99	0.100	2.000	0	99.3	70	130				
Dibromomethane	2.17	0.100	2.000	0	108	74.2	125				
cis-1,3-Dichloropropene	2.23	0.100	2.000	0	111	62.8	135				
Toluene	1.96	0.100	2.000	0	98.2	73.6	127				
trans-1,3-Dichloropropene	2.33	0.100	2.000	0	117	58.1	138				
1,1,2-Trichloroethane	2.18	0.100	2.000	0	109	65.4	128				
1,3-Dichloropropane	2.19	0.100	2.000	0	110	71.9	131				
Tetrachloroethene (PCE)	1.95	0.100	2.000	0	97.6	52.4	140				
Dibromochloromethane	2.17	0.100	2.000	0	109	68.7	139				
1,2-Dibromoethane (EDB)	2.26	0.00100	2.000	0	113	71.2	129				
Chlorobenzene	2.00	0.100	2.000	0	100	77.2	122				
1,1,1,2-Tetrachloroethane	2.00	0.100	2.000	0	100	76.2	130				
Ethylbenzene	1.95	0.100	2.000	0	97.7	78	127				
m,p-Xylene	3.95	0.100	4.000	0	98.8	77.5	130				
o-Xylene	1.99	0.100	2.000	0	99.5	77.6	126				
Styrene	2.00	0.100	2.000	0	100	66.8	137				
Isopropylbenzene	1.94	0.100	2.000	0	97.2	75.9	133				
Bromoform	2.01	0.100	2.000	0	100	54.1	146				
1,1,2,2-Tetrachloroethane	2.36	0.100	2.000	0	118	68	134				
n-Propylbenzene	1.99	0.100	2.000	0	99.7	77.1	133				
Bromobenzene	2.06	0.100	2.000	0	103	71.1	131				
1,3,5-Trimethylbenzene	1.98	0.100	2.000	0	98.9	76.2	133				
2-Chlorotoluene	1.96	0.100	2.000	0	97.8	67.1	137				
4-Chlorotoluene	2.01	0.100	2.000	0	101	70.7	132				
tert-Butylbenzene	1.96	0.100	2.000	0	97.8	71.3	139				
1,2,3-Trichloropropane	2.52	0.100	2.000	0	126	70.8	132				
1,2,4-Trichlorobenzene	2.37	0.200	2.000	0	119	61.4	139				

Work Order: 1705242
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36293** SampType: **LCS** Units: **µg/L** Prep Date: **5/19/2017** RunNo: **36293**
Client ID: **LCSW** Batch ID: **R36293** Analysis Date: **5/19/2017** SeqNo: **695546**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	2.07	0.100	2.000	0	103	77.4	136				
4-Isopropyltoluene	2.12	0.100	2.000	0	106	78.1	131				
1,3-Dichlorobenzene	2.01	0.100	2.000	0	100	73.5	125				
1,4-Dichlorobenzene	2.05	0.100	2.000	0	103	71.4	125				
n-Butylbenzene	2.15	0.100	2.000	0	108	69.8	138				
1,2-Dichlorobenzene	2.09	0.100	2.000	0	104	74.2	123				
1,2-Dibromo-3-chloropropane	2.36	0.100	2.000	0	118	53.6	155				
1,2,4-Trimethylbenzene	2.04	0.100	2.000	0	102	72.3	133				
Hexachlorobutadiene	2.02	0.400	2.000	0	101	60.9	141				
Naphthalene	2.84	0.100	2.000	0	142	58.2	140				S
1,2,3-Trichlorobenzene	2.48	0.400	2.000	0	124	61.3	133				
Surr: Dibromofluoromethane	2.56		2.500		102	61.1	128				
Surr: Toluene-d8	2.59		2.500		104	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.75		2.500		110	64.7	128				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1705242**
Logged by:	**Erica Silva**	Date Received:	**5/19/2017 12:57:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Date: 5/19/17 Page: 1 of: 1

Laboratory Project No (Internal): 1705242

Special Remarks: Provide EDD

Project Name: WA Industries

Project No: 64001

Location: 825 S. Dakota St.

Collected by: J. Sherrod

Reports to (PM): Sean Trimble

Client: Environmental Partners Inc.

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 4253495000

Fax:

Email (PM): seant@epi-wa.com

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	AIR-INF	/	5/19/17 1130	S	TB	1L	.5 min	/		/	/	VOCs by 8260C		
2	AIR-EFF	/	5/19/17 1140	S	TB	1L	.5 min	/		/	/	VOCs by 8260C		
3														
4														
5														

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	5/19/17 1257	x	5/19/17 1257
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:
- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1705261

May 30, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 5/22/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *05/30/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1705261

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1705261-001	AIR-EFF	05/22/2017 10:10 AM	05/22/2017 11:20 AM
1705261-002	AIR-INF	05/22/2017 10:00 AM	05/22/2017 11:20 AM

Case Narrative

WO#: **1705261**
Date: **5/30/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 5/22/2017 10:10:00 AM
Project: WA Industries
Lab ID: 1705261-001 **Matrix:** Air
Client Sample ID: AIR-EFF

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R36421 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Chloromethane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Vinyl chloride	ND	0.0200		µg/L	1	5/25/2017 8:06:03 AM
Bromomethane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Chloroethane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Methylene chloride	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/25/2017 8:06:03 AM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Chloroform	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Carbon tetrachloride	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Benzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Trichloroethene (TCE)	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Dichlorobromomethane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Dibromomethane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Toluene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Dibromochloromethane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/25/2017 8:06:03 AM
Chlorobenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Ethylbenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
m,p-Xylene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
o-Xylene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Styrene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Isopropylbenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Bromoform	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM

Analytical Report

Work Order: **1705261**
Date Reported: **5/30/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/22/2017 10:10:00 AM
Project: WA Industries
Lab ID: 1705261-001
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36421		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
n-Propylbenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Bromobenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
2-Chlorotoluene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
4-Chlorotoluene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
tert-Butylbenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/25/2017 8:06:03 AM
sec-Butylbenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
n-Butylbenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/25/2017 8:06:03 AM
Naphthalene	ND	0.100		µg/L	1	5/25/2017 8:06:03 AM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/25/2017 8:06:03 AM
Surr: Dibromofluoromethane	90.8	61.1-128		%Rec	1	5/25/2017 8:06:03 AM
Surr: Toluene-d8	90.4	66-138		%Rec	1	5/25/2017 8:06:03 AM
Surr: 1-Bromo-4-fluorobenzene	91.1	64.7-128		%Rec	1	5/25/2017 8:06:03 AM

Client: Environmental Partners, Inc. **Collection Date:** 5/22/2017 10:00:00 AM
Project: WA Industries
Lab ID: 1705261-002 **Matrix:** Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36421		Analyst: MW
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Chloromethane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Vinyl chloride	ND	0.0200		µg/L	1	5/25/2017 9:03:03 AM
Bromomethane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Chloroethane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Methylene chloride	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/25/2017 9:03:03 AM
cis-1,2-Dichloroethene	0.480	0.100		µg/L	1	5/25/2017 9:03:03 AM
Chloroform	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Carbon tetrachloride	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Benzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Trichloroethene (TCE)	13.8	1.00	D	µg/L	10	5/25/2017 8:34:28 AM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Dichlorobromomethane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Dibromomethane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Toluene	0.122	0.100		µg/L	1	5/25/2017 9:03:03 AM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Tetrachloroethene (PCE)	0.709	0.100		µg/L	1	5/25/2017 9:03:03 AM
Dibromochloromethane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/25/2017 9:03:03 AM
Chlorobenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Ethylbenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
m,p-Xylene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
o-Xylene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Styrene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Isopropylbenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Bromoform	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM

Analytical Report

Work Order: **1705261**
Date Reported: **5/30/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/22/2017 10:00:00 AM
Project: WA Industries
Lab ID: 1705261-002
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36421		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
n-Propylbenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Bromobenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
2-Chlorotoluene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
4-Chlorotoluene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
tert-Butylbenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/25/2017 9:03:03 AM
sec-Butylbenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
n-Butylbenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/25/2017 9:03:03 AM
Naphthalene	ND	0.100		µg/L	1	5/25/2017 9:03:03 AM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/25/2017 9:03:03 AM
Surr: Dibromofluoromethane	99.3	61.1-128		%Rec	1	5/25/2017 9:03:03 AM
Surr: Toluene-d8	91.9	66-138		%Rec	1	5/25/2017 9:03:03 AM
Surr: 1-Bromo-4-fluorobenzene	93.9	64.7-128		%Rec	1	5/25/2017 9:03:03 AM

Work Order: 1705261
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705275-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/25/2017** RunNo: **36421**
Client ID: **BATCH** Batch ID: **R36421** Analysis Date: **5/25/2017** SeqNo: **698674**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.100						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Dichlorobromomethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.00100						0		30	

Work Order: 1705261
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705275-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/25/2017** RunNo: **36421**
Client ID: **BATCH** Batch ID: **R36421** Analysis Date: **5/25/2017** SeqNo: **698674**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	1.20		1.250		96.3	61.1	128		0		
Surr: Toluene-d8	1.17		1.250		93.5	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	1.29		1.250		103	64.7	128		0		

Work Order: 1705261
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**1705275-001AREP**	SampType:	**REP**			Units:	**µg/L**	Prep Date:	**5/25/2017**		RunNo:	**36421**
Client ID:	**BATCH**	Batch ID:	**R36421**					Analysis Date:	**5/25/2017**		SeqNo:	**698674**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**MB-R36421**	SampType:	**MBLK**			Units:	**µg/L**	Prep Date:	**5/26/2017**		RunNo:	**36421**
Client ID:	**MBLKW**	Batch ID:	**R36421**					Analysis Date:	**5/26/2017**		SeqNo:	**698681**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									

Work Order: 1705261
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36421** SampType: **MBLK** Units: **µg/L** Prep Date: **5/26/2017** RunNo: **36421**
Client ID: **MBLKW** Batch ID: **R36421** Analysis Date: **5/26/2017** SeqNo: **698681**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									

Work Order: 1705261
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36421** SampType: **MBLK** Units: **µg/L** Prep Date: **5/26/2017** RunNo: **36421**
Client ID: **MBLKW** Batch ID: **R36421** Analysis Date: **5/26/2017** SeqNo: **698681**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.36		2.500		94.2	61.1	128				
Surr: Toluene-d8	2.22		2.500		88.9	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.34		2.500		93.6	64.7	128				

Sample ID **LCS-R36421** SampType: **LCS** Units: **µg/L** Prep Date: **5/26/2017** RunNo: **36421**
Client ID: **LCSW** Batch ID: **R36421** Analysis Date: **5/26/2017** SeqNo: **698680**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	3.67	0.100	2.000	0	183	38.8	143				S
Chloromethane	2.41	0.100	2.000	0	120	42.5	131				
Vinyl chloride	2.31	0.0200	2.000	0	116	56.2	130				
Bromomethane	2.21	0.100	2.000	0	111	45.4	138				
Trichlorofluoromethane	2.01	0.100	2.000	0	101	64.7	129				
Chloroethane	2.02	0.100	2.000	0	101	62.5	123				
1,1-Dichloroethene	2.02	0.100	2.000	0	101	60.7	146				
Methylene chloride	2.20	0.100	2.000	0	110	60.3	135				
trans-1,2-Dichloroethene	1.85	0.100	2.000	0	92.5	71.3	129				
Methyl tert-butyl ether (MTBE)	1.66	0.100	2.000	0	83.1	59.3	138				
1,1-Dichloroethane	1.85	0.100	2.000	0	92.3	71.3	129				
2,2-Dichloropropane	1.88	0.200	2.000	0	94.2	37.8	132				
cis-1,2-Dichloroethene	1.81	0.100	2.000	0	90.3	67.5	127				
Chloroform	1.97	0.100	2.000	0	98.6	70.3	123				
1,1,1-Trichloroethane (TCA)	1.99	0.100	2.000	0	99.5	67.9	134				
1,1-Dichloropropene	1.86	0.100	2.000	0	92.8	72.1	133				
Carbon tetrachloride	1.79	0.100	2.000	0	89.4	64.4	133				
1,2-Dichloroethane (EDC)	1.79	0.100	2.000	0	89.3	65.8	126				
Benzene	1.81	0.100	2.000	0	90.7	67.1	132				

Work Order: 1705261
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36421** SampType: **LCS** Units: **µg/L** Prep Date: **5/26/2017** RunNo: **36421**
Client ID: **LCSW** Batch ID: **R36421** Analysis Date: **5/26/2017** SeqNo: **698680**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	1.76	0.100	2.000	0	87.8	71.9	130				
1,2-Dichloropropane	1.81	0.100	2.000	0	90.3	71.9	131				
Dichlorobromomethane	1.60	0.100	2.000	0	80.2	70	130				
Dibromomethane	1.74	0.100	2.000	0	87.0	74.2	125				
cis-1,3-Dichloropropene	1.82	0.100	2.000	0	91.0	62.8	135				
Toluene	1.81	0.100	2.000	0	90.5	73.6	127				
trans-1,3-Dichloropropene	1.79	0.100	2.000	0	89.4	58.1	138				
1,1,2-Trichloroethane	1.73	0.100	2.000	0	86.6	65.4	128				
1,3-Dichloropropane	1.75	0.100	2.000	0	87.6	71.9	131				
Tetrachloroethene (PCE)	1.82	0.100	2.000	0	91.1	52.4	140				
Dibromochloromethane	1.69	0.100	2.000	0	84.7	68.7	139				
1,2-Dibromoethane (EDB)	1.73	0.00100	2.000	0	86.5	71.2	129				
Chlorobenzene	1.96	0.100	2.000	0	98.1	77.2	122				
1,1,1,2-Tetrachloroethane	1.88	0.100	2.000	0	93.8	76.2	130				
Ethylbenzene	1.94	0.100	2.000	0	97.0	78	127				
m,p-Xylene	3.94	0.100	4.000	0	98.6	77.5	130				
o-Xylene	1.97	0.100	2.000	0	98.5	77.6	126				
Styrene	1.94	0.100	2.000	0	96.9	66.8	137				
Isopropylbenzene	1.94	0.100	2.000	0	97.0	75.9	133				
Bromoform	1.60	0.100	2.000	0	80.2	54.1	146				
1,1,2,2-Tetrachloroethane	1.92	0.100	2.000	0	95.8	68	134				
n-Propylbenzene	1.94	0.100	2.000	0	97.1	77.1	133				
Bromobenzene	1.94	0.100	2.000	0	97.1	71.1	131				
1,3,5-Trimethylbenzene	1.89	0.100	2.000	0	94.5	76.2	133				
2-Chlorotoluene	1.97	0.100	2.000	0	98.5	67.1	137				
4-Chlorotoluene	1.94	0.100	2.000	0	96.8	70.7	132				
tert-Butylbenzene	1.95	0.100	2.000	0	97.4	71.3	139				
1,2,3-Trichloropropane	1.88	0.100	2.000	0	94.1	70.8	132				
1,2,4-Trichlorobenzene	2.01	0.200	2.000	0	100	61.4	139				
sec-Butylbenzene	2.03	0.100	2.000	0	101	77.4	136				
4-Isopropyltoluene	2.02	0.100	2.000	0	101	78.1	131				

Work Order: 1705261
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36421** SampType: **LCS** Units: **µg/L** Prep Date: **5/26/2017** RunNo: **36421**
Client ID: **LCSW** Batch ID: **R36421** Analysis Date: **5/26/2017** SeqNo: **698680**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	2.02	0.100	2.000	0	101	73.5	125				
1,4-Dichlorobenzene	2.03	0.100	2.000	0	101	71.4	125				
n-Butylbenzene	2.01	0.100	2.000	0	101	69.8	138				
1,2-Dichlorobenzene	2.00	0.100	2.000	0	100	74.2	123				
1,2-Dibromo-3-chloropropane	1.54	0.100	2.000	0	77.0	53.6	155				
1,2,4-Trimethylbenzene	1.89	0.100	2.000	0	94.6	72.3	133				
Hexachlorobutadiene	2.02	0.400	2.000	0	101	60.9	141				
Naphthalene	2.07	0.100	2.000	0	103	58.2	140				
1,2,3-Trichlorobenzene	2.08	0.400	2.000	0	104	61.3	133				
Surr: Dibromofluoromethane	2.56		2.500		102	61.1	128				
Surr: Toluene-d8	2.35		2.500		93.9	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.62		2.500		105	64.7	128				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1705261**
Logged by:	**Erica Silva**	Date Received:	**5/22/2017 11:20:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Date: 5/22/17 Page: 1 of: 1

Laboratory Project No (Internal): 1705261

Special Remarks: Provide EDD

Project Name: WA Industries

Project No: 64001

Location: 825 S. Dakota St.

Collected by: J. Shemet

Reports to (PM): Sean Trimble

Email (PM): seant@epi-wa.com

Client: EPI

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	AIR-EFF	/	5/22/17 1010	S	TB	1L	.5 min	/			/	VOCs by 8260c		
2	AIR-INF	/	5/22/17 1000	S	TB	1L	.5 min	/		/	/	VOCs by 8260c		
3														
4														
5														

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	5/22/17 / 1120	x	5/22/2017 1120
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1705324

June 02, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 5/30/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *06/02/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1705324

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1705324-001	AIR-INF	05/30/2017 6:30 AM	05/30/2017 8:05 AM
1705324-002	AIR-EFF	05/30/2017 6:35 AM	05/30/2017 8:05 AM

Case Narrative

WO#: **1705324**
Date: **6/2/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 5/30/2017 6:30:00 AM
Project: WA Industries
Lab ID: 1705324-001 **Matrix:** Air
Client Sample ID: **AIR-INF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R36523 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Chloromethane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Vinyl chloride	ND	0.0200		µg/L	1	5/31/2017 11:06:50 AM
Bromomethane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Chloroethane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Methylene chloride	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/31/2017 11:06:50 AM
cis-1,2-Dichloroethene	0.464	0.100		µg/L	1	5/31/2017 11:06:50 AM
Chloroform	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Carbon tetrachloride	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Benzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Trichloroethene (TCE)	15.9	1.00	D	µg/L	10	5/31/2017 10:38:13 AM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Dichlorobromomethane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Dibromomethane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Toluene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Tetrachloroethene (PCE)	0.756	0.100		µg/L	1	5/31/2017 11:06:50 AM
Dibromochloromethane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/31/2017 11:06:50 AM
Chlorobenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Ethylbenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
m,p-Xylene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
o-Xylene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Styrene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Isopropylbenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Bromoform	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM

Analytical Report

Work Order: **1705324**
Date Reported: **6/2/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/30/2017 6:30:00 AM
Project: WA Industries
Lab ID: 1705324-001
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36523		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
n-Propylbenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Bromobenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
2-Chlorotoluene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
4-Chlorotoluene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
tert-Butylbenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/31/2017 11:06:50 AM
sec-Butylbenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
n-Butylbenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,2-Dibromo-3-chloropropane	ND	0.100	Q	µg/L	1	5/31/2017 11:06:50 AM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/31/2017 11:06:50 AM
Naphthalene	ND	0.100		µg/L	1	5/31/2017 11:06:50 AM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/31/2017 11:06:50 AM
Surr: Dibromofluoromethane	99.2	61.1-128		%Rec	1	5/31/2017 11:06:50 AM
Surr: Toluene-d8	98.7	66-138		%Rec	1	5/31/2017 11:06:50 AM
Surr: 1-Bromo-4-fluorobenzene	99.7	64.7-128		%Rec	1	5/31/2017 11:06:50 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Client: Environmental Partners, Inc. **Collection Date:** 5/30/2017 6:35:00 AM
Project: WA Industries
Lab ID: 1705324-002 **Matrix:** Air
Client Sample ID: **AIR-EFF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R36523 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Chloromethane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Vinyl chloride	ND	0.0200		µg/L	1	5/31/2017 9:41:10 AM
Bromomethane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Trichlorofluoromethane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Chloroethane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,1-Dichloroethene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Methylene chloride	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,1-Dichloroethane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
2,2-Dichloropropane	ND	0.200		µg/L	1	5/31/2017 9:41:10 AM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Chloroform	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,1-Dichloropropene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Carbon tetrachloride	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Benzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Trichloroethene (TCE)	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,2-Dichloropropane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Dichlorobromomethane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Dibromomethane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Toluene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,3-Dichloropropane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Dibromochloromethane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	5/31/2017 9:41:10 AM
Chlorobenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Ethylbenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
m,p-Xylene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
o-Xylene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Styrene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Isopropylbenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Bromoform	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM

Analytical Report

Work Order: **1705324**
Date Reported: **6/2/2017**

Client: Environmental Partners, Inc.
Collection Date: 5/30/2017 6:35:00 AM
Project: WA Industries
Lab ID: 1705324-002
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36523		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
n-Propylbenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Bromobenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
2-Chlorotoluene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
4-Chlorotoluene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
tert-Butylbenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	5/31/2017 9:41:10 AM
sec-Butylbenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
4-Isopropyltoluene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
n-Butylbenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,2-Dibromo-3-chloropropane	ND	0.100	Q	µg/L	1	5/31/2017 9:41:10 AM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
Hexachlorobutadiene	ND	0.400		µg/L	1	5/31/2017 9:41:10 AM
Naphthalene	ND	0.100		µg/L	1	5/31/2017 9:41:10 AM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	5/31/2017 9:41:10 AM
Surr: Dibromofluoromethane	98.2	61.1-128		%Rec	1	5/31/2017 9:41:10 AM
Surr: Toluene-d8	97.3	66-138		%Rec	1	5/31/2017 9:41:10 AM
Surr: 1-Bromo-4-fluorobenzene	93.1	64.7-128		%Rec	1	5/31/2017 9:41:10 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1705324
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705324-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/31/2017** RunNo: **36523**
Client ID: **AIR-EFF** Batch ID: **R36523** Analysis Date: **5/31/2017** SeqNo: **700599**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.100						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Dichlorobromomethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.00100						0		30	

Work Order: 1705324
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705324-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/31/2017** RunNo: **36523**
Client ID: **AIR-EFF** Batch ID: **R36523** Analysis Date: **5/31/2017** SeqNo: **700599**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	Q
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.45		2.500		98.1	61.1	128		0		
Surr: Toluene-d8	2.43		2.500		97.1	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.36		2.500		94.3	64.7	128		0		

Work Order: 1705324
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1705324-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **5/31/2017** RunNo: **36523**
Client ID: **AIR-EFF** Batch ID: **R36523** Analysis Date: **5/31/2017** SeqNo: **700599**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **MB-R36523** SampType: **MBLK** Units: **µg/L** Prep Date: **5/31/2017** RunNo: **36523**
Client ID: **MBLKW** Batch ID: **R36523** Analysis Date: **5/31/2017** SeqNo: **700604**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									

Work Order: 1705324
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36523** SampType: **MBLK** Units: **µg/L** Prep Date: **5/31/2017** RunNo: **36523**
Client ID: **MBLKW** Batch ID: **R36523** Analysis Date: **5/31/2017** SeqNo: **700604**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.100									
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									

Work Order: 1705324
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36523** SampType: **MBLK** Units: **µg/L** Prep Date: **5/31/2017** RunNo: **36523**
Client ID: **MBLKW** Batch ID: **R36523** Analysis Date: **5/31/2017** SeqNo: **700604**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.47		2.500		99.0	61.1	128				
Surr: Toluene-d8	2.63		2.500		105	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.34		2.500		93.7	64.7	128				

Sample ID **LCS-R36523** SampType: **LCS** Units: **µg/L** Prep Date: **5/31/2017** RunNo: **36523**
Client ID: **LCSW** Batch ID: **R36523** Analysis Date: **5/31/2017** SeqNo: **700603**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	2.87	0.100	2.000	0	144	38.8	143				S
Chloromethane	2.26	0.100	2.000	0	113	42.5	131				
Vinyl chloride	2.20	0.0200	2.000	0	110	56.2	130				
Bromomethane	2.12	0.100	2.000	0	106	45.4	138				
Trichlorofluoromethane	2.28	0.100	2.000	0	114	64.7	129				
Chloroethane	2.25	0.100	2.000	0	113	62.5	123				
1,1-Dichloroethene	2.04	0.100	2.000	0	102	60.7	146				
Methylene chloride	2.08	0.100	2.000	0	104	60.3	135				
trans-1,2-Dichloroethene	2.02	0.100	2.000	0	101	71.3	129				
Methyl tert-butyl ether (MTBE)	1.86	0.100	2.000	0	93.1	59.3	138				
1,1-Dichloroethane	2.07	0.100	2.000	0	103	71.3	129				
2,2-Dichloropropane	2.03	0.200	2.000	0	102	37.8	132				
cis-1,2-Dichloroethene	2.01	0.100	2.000	0	101	67.5	127				
Chloroform	2.04	0.100	2.000	0	102	70.3	123				
1,1,1-Trichloroethane (TCA)	2.01	0.100	2.000	0	100	67.9	134				
1,1-Dichloropropene	1.95	0.100	2.000	0	97.3	72.1	133				
Carbon tetrachloride	1.84	0.100	2.000	0	91.8	64.4	133				
1,2-Dichloroethane (EDC)	2.02	0.100	2.000	0	101	65.8	126				

Work Order: 1705324
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36523** SampType: **LCS** Units: **µg/L** Prep Date: **5/31/2017** RunNo: **36523**
Client ID: **LCSW** Batch ID: **R36523** Analysis Date: **5/31/2017** SeqNo: **700603**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	2.04	0.100	2.000	0	102	67.1	132				
Trichloroethene (TCE)	1.96	0.100	2.000	0	97.8	71.9	130				
1,2-Dichloropropane	2.06	0.100	2.000	0	103	71.9	131				
Dichlorobromomethane	2.03	0.100	2.000	0	102	70	130				
Dibromomethane	2.05	0.100	2.000	0	102	74.2	125				
cis-1,3-Dichloropropene	2.14	0.100	2.000	0	107	62.8	135				
Toluene	2.07	0.100	2.000	0	104	73.6	127				
trans-1,3-Dichloropropene	2.09	0.100	2.000	0	105	58.1	138				
1,1,2-Trichloroethane	1.98	0.100	2.000	0	99.1	65.4	128				
1,3-Dichloropropane	1.96	0.100	2.000	0	97.9	71.9	131				
Tetrachloroethene (PCE)	2.04	0.100	2.000	0	102	52.4	140				
Dibromochloromethane	2.13	0.100	2.000	0	107	68.7	139				
1,2-Dibromoethane (EDB)	1.97	0.00100	2.000	0	98.3	71.2	129				
Chlorobenzene	2.04	0.100	2.000	0	102	77.2	122				
1,1,1,2-Tetrachloroethane	2.05	0.100	2.000	0	103	76.2	130				
Ethylbenzene	2.01	0.100	2.000	0	101	78	127				
m,p-Xylene	4.08	0.100	4.000	0	102	77.5	130				
o-Xylene	2.05	0.100	2.000	0	103	77.6	126				
Styrene	2.02	0.100	2.000	0	101	66.8	137				
Isopropylbenzene	2.01	0.100	2.000	0	100	75.9	133				
Bromoform	1.82	0.100	2.000	0	91.2	54.1	146				
1,1,2,2-Tetrachloroethane	1.97	0.100	2.000	0	98.5	68	134				
n-Propylbenzene	1.96	0.100	2.000	0	97.9	77.1	133				
Bromobenzene	2.00	0.100	2.000	0	99.9	71.1	131				
1,3,5-Trimethylbenzene	1.96	0.100	2.000	0	98.1	76.2	133				
2-Chlorotoluene	2.06	0.100	2.000	0	103	67.1	137				
4-Chlorotoluene	2.02	0.100	2.000	0	101	70.7	132				
tert-Butylbenzene	2.01	0.100	2.000	0	101	71.3	139				
1,2,3-Trichloropropane	1.91	0.100	2.000	0	95.5	70.8	132				
1,2,4-Trichlorobenzene	2.04	0.200	2.000	0	102	61.4	139				
sec-Butylbenzene	2.03	0.100	2.000	0	102	77.4	136				

Work Order: 1705324
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36523** SampType: **LCS** Units: **µg/L** Prep Date: **5/31/2017** RunNo: **36523**
Client ID: **LCSW** Batch ID: **R36523** Analysis Date: **5/31/2017** SeqNo: **700603**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	2.06	0.100	2.000	0	103	78.1	131				
1,3-Dichlorobenzene	2.11	0.100	2.000	0	105	73.5	125				
1,4-Dichlorobenzene	2.10	0.100	2.000	0	105	71.4	125				
n-Butylbenzene	1.98	0.100	2.000	0	99.2	69.8	138				
1,2-Dichlorobenzene	2.06	0.100	2.000	0	103	74.2	123				
1,2-Dibromo-3-chloropropane	1.83	0.100	2.000	0	91.3	53.6	155				
1,2,4-Trimethylbenzene	1.97	0.100	2.000	0	98.5	72.3	133				
Hexachlorobutadiene	2.06	0.400	2.000	0	103	60.9	141				
Naphthalene	2.05	0.100	2.000	0	103	58.2	140				
1,2,3-Trichlorobenzene	2.15	0.400	2.000	0	107	61.3	133				
Surr: Dibromofluoromethane	2.58		2.500		103	61.1	128				
Surr: Toluene-d8	2.59		2.500		104	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.64		2.500		106	64.7	128				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1705324**
Logged by:	**Clare Griggs**	Date Received:	**5/30/2017 8:05:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Laboratory Project No (Internal): 1705324

Date: 5/30/17 Page: 1 of: 1

Special Remarks: Provide : EDD Table

Project Name: WA Industries

Project No: 64001

Location: 825 S. Dakota St.

Collected by: J. Sherrod

Reports to (PM): Sean Trimble

Client: EPI

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

Email (PM): seant@epi-wa.com

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	AIR-INF	Canister / Flow Reg	5/30/17 Date / 0630 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260C		
2	AIR-EFF	Canister / Flow Reg	5/30/17 Date / 0635 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260C		
3		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	5/30/17 / 0805	x	5/30/2017 0805
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1706029

June 09, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 6/5/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *06/09/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1706029

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1706029-001	AIR-INF	06/05/2017 6:35 AM	06/05/2017 8:07 AM
1706029-002	AIR-EFF	06/05/2017 6:30 AM	06/05/2017 8:07 AM

Case Narrative

WO#: **1706029**
Date: **6/9/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc.
Collection Date: 6/5/2017 6:35:00 AM
Project: WA Industries
Lab ID: 1706029-001
Matrix: Air
Client Sample ID: **AIR-INF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R36701 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Chloromethane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Vinyl chloride	ND	0.0200		µg/L	1	6/8/2017 4:53:20 PM
Bromomethane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Chloroethane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Methylene chloride	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	6/8/2017 4:53:20 PM
cis-1,2-Dichloroethene	0.395	0.100		µg/L	1	6/8/2017 4:53:20 PM
Chloroform	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Carbon tetrachloride	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Benzene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Trichloroethene (TCE)	11.3	1.00	D	µg/L	10	6/8/2017 3:27:16 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Dichlorobromomethane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Dibromomethane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Toluene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Tetrachloroethene (PCE)	0.398	0.100		µg/L	1	6/8/2017 4:53:20 PM
Dibromochloromethane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	6/8/2017 4:53:20 PM
Chlorobenzene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Ethylbenzene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
m,p-Xylene	0.102	0.100		µg/L	1	6/8/2017 4:53:20 PM
o-Xylene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Styrene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Isopropylbenzene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Bromoform	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM

Analytical Report

Work Order: **1706029**
Date Reported: **6/9/2017**

Client: Environmental Partners, Inc.
Collection Date: 6/5/2017 6:35:00 AM
Project: WA Industries
Lab ID: 1706029-001
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36701		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
n-Propylbenzene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
Bromobenzene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,3,5-Trimethylbenzene	0.131	0.100		µg/L	1	6/8/2017 4:53:20 PM
2-Chlorotoluene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
4-Chlorotoluene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
tert-Butylbenzene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	6/8/2017 4:53:20 PM
sec-Butylbenzene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
n-Butylbenzene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,2,4-Trimethylbenzene	0.207	0.100		µg/L	1	6/8/2017 4:53:20 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	6/8/2017 4:53:20 PM
Naphthalene	ND	0.100		µg/L	1	6/8/2017 4:53:20 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	6/8/2017 4:53:20 PM
Surr: Dibromofluoromethane	109	61.1-128		%Rec	1	6/8/2017 4:53:20 PM
Surr: Toluene-d8	88.9	66-138		%Rec	1	6/8/2017 4:53:20 PM
Surr: 1-Bromo-4-fluorobenzene	94.4	64.7-128		%Rec	1	6/8/2017 4:53:20 PM

Client: Environmental Partners, Inc.
Collection Date: 6/5/2017 6:30:00 AM
Project: WA Industries
Lab ID: 1706029-002
Matrix: Air
Client Sample ID: **AIR-EFF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R36701 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Chloromethane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Vinyl chloride	ND	0.0200		µg/L	1	6/8/2017 1:32:49 PM
Bromomethane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Chloroethane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Methylene chloride	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	6/8/2017 1:32:49 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Chloroform	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Carbon tetrachloride	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Benzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Trichloroethene (TCE)	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Dichlorobromomethane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Dibromomethane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Toluene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Dibromochloromethane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	6/8/2017 1:32:49 PM
Chlorobenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Ethylbenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
m,p-Xylene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
o-Xylene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Styrene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Isopropylbenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Bromoform	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM

Analytical Report

Work Order: **1706029**
Date Reported: **6/9/2017**

Client: Environmental Partners, Inc.
Collection Date: 6/5/2017 6:30:00 AM
Project: WA Industries
Lab ID: 1706029-002
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36701		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
n-Propylbenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Bromobenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
2-Chlorotoluene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
4-Chlorotoluene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
tert-Butylbenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	6/8/2017 1:32:49 PM
sec-Butylbenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
n-Butylbenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	6/8/2017 1:32:49 PM
Naphthalene	ND	0.100		µg/L	1	6/8/2017 1:32:49 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	6/8/2017 1:32:49 PM
Surr: Dibromofluoromethane	106	61.1-128		%Rec	1	6/8/2017 1:32:49 PM
Surr: Toluene-d8	88.0	66-138		%Rec	1	6/8/2017 1:32:49 PM
Surr: 1-Bromo-4-fluorobenzene	85.9	64.7-128		%Rec	1	6/8/2017 1:32:49 PM

Work Order: 1706029
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID: **LCS-R36701** SampType: **LCS** Units: **µg/L** Prep Date: **6/8/2017** RunNo: **36701**
Client ID: **LCSW** Batch ID: **R36701** Analysis Date: **6/8/2017** SeqNo: **704501**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	2.28	0.100	2.000	0	114	38.8	143				
Chloromethane	1.84	0.100	2.000	0	92.1	42.5	131				
Vinyl chloride	1.99	0.0200	2.000	0	99.7	56.2	130				
Bromomethane	2.66	0.100	2.000	0	133	45.4	138				
Trichlorofluoromethane	2.06	0.100	2.000	0	103	64.7	129				
Chloroethane	2.06	0.100	2.000	0	103	62.5	123				
1,1-Dichloroethene	2.02	0.100	2.000	0	101	60.7	146				
Methylene chloride	2.08	0.100	2.000	0	104	60.3	135				
trans-1,2-Dichloroethene	2.17	0.100	2.000	0	108	71.3	129				
Methyl tert-butyl ether (MTBE)	2.12	0.100	2.000	0	106	59.3	138				
1,1-Dichloroethane	2.22	0.100	2.000	0	111	71.3	129				
2,2-Dichloropropane	2.78	0.200	2.000	0	139	37.8	132				S
cis-1,2-Dichloroethene	2.18	0.100	2.000	0	109	67.5	127				
Chloroform	2.13	0.100	2.000	0	106	70.3	123				
1,1,1-Trichloroethane (TCA)	2.07	0.100	2.000	0	104	67.9	134				
1,1-Dichloropropene	2.15	0.100	2.000	0	107	72.1	133				
Carbon tetrachloride	1.87	0.100	2.000	0	93.7	64.4	133				
1,2-Dichloroethane (EDC)	2.12	0.100	2.000	0	106	65.8	126				
Benzene	2.21	0.100	2.000	0	111	67.1	132				
Trichloroethene (TCE)	2.09	0.100	2.000	0	104	71.9	130				
1,2-Dichloropropane	1.85	0.100	2.000	0	92.7	71.9	131				
Dichlorobromomethane	1.80	0.100	2.000	0	89.9	70	130				
Dibromomethane	1.77	0.100	2.000	0	88.6	74.2	125				
cis-1,3-Dichloropropene	2.01	0.100	2.000	0	100	62.8	135				
Toluene	1.78	0.100	2.000	0	88.9	73.6	127				
trans-1,3-Dichloropropene	2.03	0.100	2.000	0	102	58.1	138				
1,1,2-Trichloroethane	1.70	0.100	2.000	0	85.2	65.4	128				
1,3-Dichloropropane	1.77	0.100	2.000	0	88.4	71.9	131				
Tetrachloroethene (PCE)	1.65	0.100	2.000	0	82.5	52.4	140				
Dibromochloromethane	1.83	0.100	2.000	0	91.3	68.7	139				
1,2-Dibromoethane (EDB)	1.69	0.00100	2.000	0	84.4	71.2	129				

Work Order: 1706029
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID: **LCS-R36701** SampType: **LCS** Units: **µg/L** Prep Date: **6/8/2017** RunNo: **36701**
Client ID: **LCSW** Batch ID: **R36701** Analysis Date: **6/8/2017** SeqNo: **704501**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.98	0.100	2.000	0	98.8	77.2	122				
1,1,1,2-Tetrachloroethane	1.91	0.100	2.000	0	95.5	76.2	130				
Ethylbenzene	2.01	0.100	2.000	0	100	78	127				
m,p-Xylene	3.95	0.100	4.000	0	98.6	77.5	130				
o-Xylene	1.95	0.100	2.000	0	97.5	77.6	126				
Styrene	1.94	0.100	2.000	0	97.2	66.8	137				
Isopropylbenzene	1.94	0.100	2.000	0	96.8	75.9	133				
Bromoform	1.78	0.100	2.000	0	89.0	54.1	146				
1,1,2,2-Tetrachloroethane	1.97	0.100	2.000	0	98.3	68	134				
n-Propylbenzene	1.98	0.100	2.000	0	99.1	77.1	133				
Bromobenzene	1.80	0.100	2.000	0	89.8	71.1	131				
1,3,5-Trimethylbenzene	1.89	0.100	2.000	0	94.3	76.2	133				
2-Chlorotoluene	1.90	0.100	2.000	0	94.8	67.1	137				
4-Chlorotoluene	1.91	0.100	2.000	0	95.7	70.7	132				
tert-Butylbenzene	1.88	0.100	2.000	0	93.8	71.3	139				
1,2,3-Trichloropropane	1.83	0.100	2.000	0	91.3	70.8	132				
1,2,4-Trichlorobenzene	1.95	0.200	2.000	0	97.5	61.4	139				
sec-Butylbenzene	2.00	0.100	2.000	0	99.8	77.4	136				
4-Isopropyltoluene	2.03	0.100	2.000	0	101	78.1	131				
1,3-Dichlorobenzene	2.03	0.100	2.000	0	102	73.5	125				
1,4-Dichlorobenzene	2.02	0.100	2.000	0	101	71.4	125				
n-Butylbenzene	2.28	0.100	2.000	0	114	69.8	138				
1,2-Dichlorobenzene	2.02	0.100	2.000	0	101	74.2	123				
1,2-Dibromo-3-chloropropane	1.88	0.100	2.000	0	94.2	53.6	155				
1,2,4-Trimethylbenzene	1.90	0.100	2.000	0	94.9	72.3	133				
Hexachlorobutadiene	1.77	0.400	2.000	0	88.5	60.9	141				
Naphthalene	2.11	0.100	2.000	0	105	58.2	140				
1,2,3-Trichlorobenzene	1.87	0.400	2.000	0	93.6	61.3	133				
Surr: Dibromofluoromethane	2.74		2.500		110	61.1	128				
Surr: Toluene-d8	2.34		2.500		93.7	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.37		2.500		94.9	64.7	128				

Work Order: 1706029
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID: **LCS-R36701** SampType: **LCS** Units: **µg/L** Prep Date: **6/8/2017** RunNo: **36701**
Client ID: **LCSW** Batch ID: **R36701** Analysis Date: **6/8/2017** SeqNo: **704501**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample ID: **MB-R36701** SampType: **MBLK** Units: **µg/L** Prep Date: **6/8/2017** RunNo: **36701**
Client ID: **MBLKW** Batch ID: **R36701** Analysis Date: **6/8/2017** SeqNo: **704502**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									

Work Order: 1706029
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID: **MB-R36701** SampType: **MBLK** Units: **µg/L** Prep Date: **6/8/2017** RunNo: **36701**
Client ID: **MBLKW** Batch ID: **R36701** Analysis Date: **6/8/2017** SeqNo: **704502**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.100									
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									

Work Order: 1706029
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID: **MB-R36701** SampType: **MBLK** Units: **µg/L** Prep Date: **6/8/2017** RunNo: **36701**
Client ID: **MBLKW** Batch ID: **R36701** Analysis Date: **6/8/2017** SeqNo: **704502**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.67		2.500		107	61.1	128				
Surr: Toluene-d8	2.25		2.500		90.0	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.14		2.500		85.4	64.7	128				

Sample ID: **1706029-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **6/8/2017** RunNo: **36701**
Client ID: **AIR-EFF** Batch ID: **R36701** Analysis Date: **6/8/2017** SeqNo: **704494**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	

Work Order: 1706029
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID: **1706029-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **6/8/2017** RunNo: **36701**
Client ID: **AIR-EFF** Batch ID: **R36701** Analysis Date: **6/8/2017** SeqNo: **704494**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.100						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Dichlorobromomethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.00100						0		30	
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	

Work Order: 1706029
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID: **1706029-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **6/8/2017** RunNo: **36701**
Client ID: **AIR-EFF** Batch ID: **R36701** Analysis Date: **6/8/2017** SeqNo: **704494**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.71		2.500		108	61.1	128		0		
Surr: Toluene-d8	2.21		2.500		88.6	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.37		2.500		94.8	64.7	128		0		

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1706029**
Logged by:	**Clare Griggs**	Date Received:	**6/5/2017 8:07:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes	☑	No	☐	Not Present ☐
2.	How was the sample delivered?	Client				

Log In

3.	Coolers are present?	Yes	☐	No	☑	NA ☐
		Air Samples				
4.	Shipping container/cooler in good condition?	Yes	☑	No	☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No	☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes	☐	No	☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes	☐	No	☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes	☑	No	☐	
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No	☐	
10.	Are samples properly preserved?	Yes	☑	No	☐	
11.	Was preservative added to bottles?	Yes	☐	No	☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes	☐	No	☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No	☐	
14.	Does paperwork match bottle labels?	Yes	☑	No	☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐	
16.	Is it clear what analyses were requested?	Yes	☑	No	☐	
17.	Were all holding times able to be met?	Yes	☑	No	☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes	☐	No	☐	NA ☑

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Date: 6/5/17 Page: 1 of: 1

Laboratory Project No (Internal): 1701029

Special Remarks: Provide EDD

Project Name: WA Industries

Project No: 64001

Location: 825 S. Dakota St.

Collected by: J. Sherrod

Reports to (PM): Sean Trimble

Email (PM): seant@epi-wa.com

Client: EPI

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	AIR-INF	/	6/6/17 0635	S	TB	1L	.5 min	/				VOCs by 8260c		
2	AIR-EFF	/	6/5/17 0630	S	TB	1L	.5 min	/				VOCs by 8260c		
3														
4														
5														

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	6/5/17 / 0807	x	6/5/2017 0807
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1706173

June 21, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 6/15/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *06/21/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1706173

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1706173-001	AIR-INF	06/15/2017 5:18 AM	06/15/2017 2:00 PM
1706173-002	AIR-EFF	06/15/2017 5:23 AM	06/15/2017 2:00 PM

Case Narrative

WO#: **1706173**
Date: **6/21/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 6/15/2017 5:18:00 AM
Project: WA Industries
Lab ID: 1706173-001 **Matrix:** Air
Client Sample ID: **AIR-INF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R36914 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Chloromethane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Vinyl chloride	ND	0.0200		µg/L	1	6/16/2017 2:41:12 PM
Bromomethane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Chloroethane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Methylene chloride	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	6/16/2017 2:41:12 PM
cis-1,2-Dichloroethene	0.354	0.100		µg/L	1	6/16/2017 2:41:12 PM
Chloroform	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Carbon tetrachloride	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Benzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Trichloroethene (TCE)	10.7	1.00	D	µg/L	10	6/16/2017 12:46:24 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Dichlorobromomethane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Dibromomethane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Toluene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Tetrachloroethene (PCE)	0.517	0.100		µg/L	1	6/16/2017 2:41:12 PM
Dibromochloromethane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	6/16/2017 2:41:12 PM
Chlorobenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Ethylbenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
m,p-Xylene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
o-Xylene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Styrene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Isopropylbenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Bromoform	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM

Analytical Report

Work Order: **1706173**
Date Reported: **6/21/2017**

Client: Environmental Partners, Inc.
Collection Date: 6/15/2017 5:18:00 AM
Project: WA Industries
Lab ID: 1706173-001
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36914		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
n-Propylbenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Bromobenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
2-Chlorotoluene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
4-Chlorotoluene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
tert-Butylbenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	6/16/2017 2:41:12 PM
sec-Butylbenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
n-Butylbenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	6/16/2017 2:41:12 PM
Naphthalene	ND	0.100		µg/L	1	6/16/2017 2:41:12 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	6/16/2017 2:41:12 PM
Surr: Dibromofluoromethane	103	61.1-128		%Rec	1	6/16/2017 2:41:12 PM
Surr: Toluene-d8	105	66-138		%Rec	1	6/16/2017 2:41:12 PM
Surr: 1-Bromo-4-fluorobenzene	101	64.7-128		%Rec	1	6/16/2017 2:41:12 PM

Client: Environmental Partners, Inc. **Collection Date:** 6/15/2017 5:23:00 AM
Project: WA Industries
Lab ID: 1706173-002 **Matrix:** Air
Client Sample ID: AIR-EFF

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R36914 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Chloromethane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Vinyl chloride	ND	0.0200		µg/L	1	6/16/2017 10:23:17 AM
Bromomethane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Trichlorofluoromethane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Chloroethane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,1-Dichloroethene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Methylene chloride	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,1-Dichloroethane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
2,2-Dichloropropane	ND	0.200		µg/L	1	6/16/2017 10:23:17 AM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Chloroform	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,1-Dichloropropene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Carbon tetrachloride	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Benzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Trichloroethene (TCE)	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,2-Dichloropropane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Dichlorobromomethane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Dibromomethane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Toluene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,3-Dichloropropane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Dibromochloromethane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	6/16/2017 10:23:17 AM
Chlorobenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Ethylbenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
m,p-Xylene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
o-Xylene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Styrene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Isopropylbenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Bromoform	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM

Analytical Report

Work Order: **1706173**
Date Reported: **6/21/2017**

Client: Environmental Partners, Inc.
Collection Date: 6/15/2017 5:23:00 AM
Project: WA Industries
Lab ID: 1706173-002
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R36914		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
n-Propylbenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Bromobenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
2-Chlorotoluene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
4-Chlorotoluene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
tert-Butylbenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	6/16/2017 10:23:17 AM
sec-Butylbenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
4-Isopropyltoluene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
n-Butylbenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
Hexachlorobutadiene	ND	0.400		µg/L	1	6/16/2017 10:23:17 AM
Naphthalene	ND	0.100		µg/L	1	6/16/2017 10:23:17 AM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	6/16/2017 10:23:17 AM
Surr: Dibromofluoromethane	104	61.1-128		%Rec	1	6/16/2017 10:23:17 AM
Surr: Toluene-d8	116	66-138		%Rec	1	6/16/2017 10:23:17 AM
Surr: 1-Bromo-4-fluorobenzene	94.1	64.7-128		%Rec	1	6/16/2017 10:23:17 AM

Work Order: 1706173
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1706173-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **6/16/2017** RunNo: **36914**
Client ID: **AIR-EFF** Batch ID: **R36914** Analysis Date: **6/16/2017** SeqNo: **708990**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.100						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Dichlorobromomethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.00100						0		30	

Work Order: 1706173
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1706173-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **6/16/2017** RunNo: **36914**
Client ID: **AIR-EFF** Batch ID: **R36914** Analysis Date: **6/16/2017** SeqNo: **708990**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.60		2.500		104	61.1	128		0		
Surr: Toluene-d8	2.62		2.500		105	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.36		2.500		94.5	64.7	128		0		

Work Order: 1706173
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1706173-002AREP**	SampType: **REP**			Units: **µg/L**		Prep Date: **6/16/2017**		RunNo: **36914**			
Client ID: **AIR-EFF**	Batch ID: **R36914**					Analysis Date: **6/16/2017**		SeqNo: **708990**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **MB-R36914**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **6/16/2017**		RunNo: **36914**			
Client ID: **MBLKW**	Batch ID: **R36914**					Analysis Date: **6/16/2017**		SeqNo: **708999**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									

Work Order: 1706173
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36914** SampType: **MBLK** Units: **µg/L** Prep Date: **6/16/2017** RunNo: **36914**
Client ID: **MBLKW** Batch ID: **R36914** Analysis Date: **6/16/2017** SeqNo: **708999**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									

Work Order: 1706173
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R36914** SampType: **MBLK** Units: **µg/L** Prep Date: **6/16/2017** RunNo: **36914**
Client ID: **MBLKW** Batch ID: **R36914** Analysis Date: **6/16/2017** SeqNo: **708999**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.59		2.500		103	61.1	128				
Surr: Toluene-d8	2.56		2.500		102	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.53		2.500		101	64.7	128				

Sample ID **LCS-R36914** SampType: **LCS** Units: **µg/L** Prep Date: **6/16/2017** RunNo: **36914**
Client ID: **LCSW** Batch ID: **R36914** Analysis Date: **6/16/2017** SeqNo: **708998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.69	0.100	2.000	0	84.6	38.8	143				
Chloromethane	1.93	0.100	2.000	0	96.3	42.5	131				
Vinyl chloride	1.86	0.0200	2.000	0	92.9	56.2	130				
Bromomethane	2.22	0.100	2.000	0	111	45.4	138				
Trichlorofluoromethane	1.96	0.100	2.000	0	97.8	64.7	129				
Chloroethane	1.92	0.100	2.000	0	95.9	62.5	123				
1,1-Dichloroethene	1.94	0.100	2.000	0	96.8	60.7	146				
Methylene chloride	1.96	0.100	2.000	0	98.2	60.3	135				
trans-1,2-Dichloroethene	1.97	0.100	2.000	0	98.5	71.3	129				
Methyl tert-butyl ether (MTBE)	1.80	0.100	2.000	0	89.9	59.3	138				
1,1-Dichloroethane	1.95	0.100	2.000	0	97.7	71.3	129				
2,2-Dichloropropane	2.09	0.200	2.000	0	104	37.8	132				
cis-1,2-Dichloroethene	2.01	0.100	2.000	0	100	67.5	127				
Chloroform	2.00	0.100	2.000	0	99.8	70.3	123				
1,1,1-Trichloroethane (TCA)	1.99	0.100	2.000	0	99.3	67.9	134				
1,1-Dichloropropene	1.98	0.100	2.000	0	99.2	72.1	133				
Carbon tetrachloride	1.92	0.100	2.000	0	96.1	64.4	133				
1,2-Dichloroethane (EDC)	2.00	0.100	2.000	0	100	65.8	126				
Benzene	2.00	0.100	2.000	0	100	67.1	132				

Work Order: 1706173
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36914** SampType: **LCS** Units: **µg/L** Prep Date: **6/16/2017** RunNo: **36914**
Client ID: **LCSW** Batch ID: **R36914** Analysis Date: **6/16/2017** SeqNo: **708998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	1.76	0.100	2.000	0	87.9	71.9	130				
1,2-Dichloropropane	1.86	0.100	2.000	0	92.9	71.9	131				
Dichlorobromomethane	2.19	0.100	2.000	0	109	70	130				
Dibromomethane	2.00	0.100	2.000	0	100	74.2	125				
cis-1,3-Dichloropropene	2.19	0.100	2.000	0	110	62.8	135				
Toluene	2.01	0.100	2.000	0	100	73.6	127				
trans-1,3-Dichloropropene	2.21	0.100	2.000	0	111	58.1	138				
1,1,2-Trichloroethane	2.07	0.100	2.000	0	103	65.4	128				
1,3-Dichloropropane	2.07	0.100	2.000	0	103	71.9	131				
Tetrachloroethene (PCE)	2.11	0.100	2.000	0	105	52.4	140				
Dibromochloromethane	2.28	0.100	2.000	0	114	68.7	139				
1,2-Dibromoethane (EDB)	2.04	0.00100	2.000	0	102	71.2	129				
Chlorobenzene	1.96	0.100	2.000	0	98.0	77.2	122				
1,1,1,2-Tetrachloroethane	1.97	0.100	2.000	0	98.5	76.2	130				
Ethylbenzene	1.95	0.100	2.000	0	97.6	78	127				
m,p-Xylene	3.92	0.100	4.000	0	98.1	77.5	130				
o-Xylene	1.96	0.100	2.000	0	98.1	77.6	126				
Styrene	1.96	0.100	2.000	0	97.8	66.8	137				
Isopropylbenzene	1.94	0.100	2.000	0	97.2	75.9	133				
Bromoform	2.08	0.100	2.000	0	104	54.1	146				
1,1,2,2-Tetrachloroethane	2.02	0.100	2.000	0	101	68	134				
n-Propylbenzene	2.00	0.100	2.000	0	100	77.1	133				
Bromobenzene	2.02	0.100	2.000	0	101	71.1	131				
1,3,5-Trimethylbenzene	1.97	0.100	2.000	0	98.4	76.2	133				
2-Chlorotoluene	2.01	0.100	2.000	0	101	67.1	137				
4-Chlorotoluene	1.99	0.100	2.000	0	99.3	70.7	132				
tert-Butylbenzene	1.97	0.100	2.000	0	98.5	71.3	139				
1,2,3-Trichloropropane	1.95	0.100	2.000	0	97.4	70.8	132				
1,2,4-Trichlorobenzene	1.87	0.200	2.000	0	93.5	61.4	139				
sec-Butylbenzene	2.11	0.100	2.000	0	106	77.4	136				
4-Isopropyltoluene	2.09	0.100	2.000	0	105	78.1	131				

Work Order: 1706173
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R36914** SampType: **LCS** Units: **µg/L** Prep Date: **6/16/2017** RunNo: **36914**
Client ID: **LCSW** Batch ID: **R36914** Analysis Date: **6/16/2017** SeqNo: **708998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	2.01	0.100	2.000	0	100	73.5	125				
1,4-Dichlorobenzene	2.02	0.100	2.000	0	101	71.4	125				
n-Butylbenzene	2.00	0.100	2.000	0	100	69.8	138				
1,2-Dichlorobenzene	2.03	0.100	2.000	0	102	74.2	123				
1,2-Dibromo-3-chloropropane	2.10	0.100	2.000	0	105	53.6	155				
1,2,4-Trimethylbenzene	1.94	0.100	2.000	0	96.9	72.3	133				
Hexachlorobutadiene	2.06	0.400	2.000	0	103	60.9	141				
Naphthalene	1.76	0.100	2.000	0	87.8	58.2	140				
1,2,3-Trichlorobenzene	1.90	0.400	2.000	0	95.1	61.3	133				
Surr: Dibromofluoromethane	2.62		2.500		105	61.1	128				
Surr: Toluene-d8	2.74		2.500		109	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.66		2.500		107	64.7	128				

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1706173**
Logged by:	**Clare Griggs**	Date Received:	**6/15/2017 2:00:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes	☑	No ☐	Not Present	☐
2.	How was the sample delivered?	Client				

Log In

3.	Coolers are present?	Yes	☐	No ☑	NA	☐
		Air Samples				
4.	Shipping container/cooler in good condition?	Yes	☑	No ☐		
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No ☐	Not Required	☑
6.	Was an attempt made to cool the samples?	Yes	☐	No ☐	NA	☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes	☐	No ☐	NA	☑
8.	Sample(s) in proper container(s)?	Yes	☑	No ☐		
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No ☐		
10.	Are samples properly preserved?	Yes	☑	No ☐		
11.	Was preservative added to bottles?	Yes	☐	No ☑	NA	☐
12.	Is there headspace in the VOA vials?	Yes	☐	No ☐	NA	☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No ☐		
14.	Does paperwork match bottle labels?	Yes	☑	No ☐		
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No ☐		
16.	Is it clear what analyses were requested?	Yes	☑	No ☐		
17.	Were all holding times able to be met?	Yes	☑	No ☐		

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes	☐	No ☐	NA	☑

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Date: 6/15/17 Page: 1 of: 1

Laboratory Project No (Internal): 1706173

Special Remarks: Provide EDD

Project Name: 64001

Project No: WA Industries

Client: EPI

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Location: Bainbridge Island, WA

Collected by: J. Sherrod

Reports to (PM): ~~Josh Beathal~~ Sean Trimble

Fax:

Email (PM): ~~joshb@epi-wa.com~~ seant@epi-wa.com

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	AIR-INF	Canister / Flow Reg	6/15/17 Date / 0518 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260		
2	AIR-EFF	Canister / Flow Reg	6/15/17 Date / 0523 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260		
3		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	6/15/17 1400	x [signature]	6/16/17 1400
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1706364

July 06, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 6/30/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

CC:
Joe Sherrod

Date: *07/06/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1706364

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1706364-001	AIR-INF	06/30/2017 7:00 AM	06/30/2017 9:48 AM
1706364-002	AIR-EFF	06/30/2017 7:05 AM	06/30/2017 9:48 AM

Case Narrative

WO#: **1706364**
Date: **7/6/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 6/30/2017 7:00:00 AM
Project: WA Industries
Lab ID: 1706364-001 **Matrix:** Air
Client Sample ID: **AIR-INF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: R37213 Analyst: NG

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100	Q	µg/L	1	6/30/2017 3:22:45 PM
Chloromethane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Vinyl chloride	ND	0.0200		µg/L	1	6/30/2017 3:22:45 PM
Bromomethane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Chloroethane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Methylene chloride	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
2,2-Dichloropropane	ND	0.200	Q	µg/L	1	6/30/2017 3:22:45 PM
cis-1,2-Dichloroethene	0.373	0.100		µg/L	1	6/30/2017 3:22:45 PM
Chloroform	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Carbon tetrachloride	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Benzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Trichloroethene (TCE)	9.95	1.00	D	µg/L	10	6/30/2017 2:53:33 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Dichlorobromomethane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Dibromomethane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Toluene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Tetrachloroethene (PCE)	0.496	0.100		µg/L	1	6/30/2017 3:22:45 PM
Dibromochloromethane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	6/30/2017 3:22:45 PM
Chlorobenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Ethylbenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
m,p-Xylene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
o-Xylene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Styrene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Isopropylbenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Bromoform	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM

Analytical Report

Work Order: **1706364**
Date Reported: **7/6/2017**

Client: Environmental Partners, Inc.
Collection Date: 6/30/2017 7:00:00 AM
Project: WA Industries
Lab ID: 1706364-001
Matrix: Air
Client Sample ID: **AIR-INF**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R37213		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
n-Propylbenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Bromobenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
2-Chlorotoluene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
4-Chlorotoluene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
tert-Butylbenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	6/30/2017 3:22:45 PM
sec-Butylbenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
n-Butylbenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	6/30/2017 3:22:45 PM
Naphthalene	ND	0.100		µg/L	1	6/30/2017 3:22:45 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	6/30/2017 3:22:45 PM
Surr: Dibromofluoromethane	103	61.1 - 128		%Rec	1	6/30/2017 3:22:45 PM
Surr: Toluene-d8	99.1	66 - 138		%Rec	1	6/30/2017 3:22:45 PM
Surr: 1-Bromo-4-fluorobenzene	97.9	64.7 - 128		%Rec	1	6/30/2017 3:22:45 PM

Client: Environmental Partners, Inc. **Collection Date:** 6/30/2017 7:05:00 AM
Project: WA Industries
Lab ID: 1706364-002 **Matrix:** Air
Client Sample ID: AIR-EFF

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R37213		Analyst: NG
Dichlorodifluoromethane	ND	0.100	Q	µg/L	1	6/30/2017 1:55:35 PM
Chloromethane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Vinyl chloride	ND	0.0200		µg/L	1	6/30/2017 1:55:35 PM
Bromomethane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Trichlorofluoromethane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Chloroethane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Methylene chloride	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
2,2-Dichloropropane	ND	0.200	Q	µg/L	1	6/30/2017 1:55:35 PM
cis-1,2-Dichloroethene	0.697	0.100		µg/L	1	6/30/2017 1:55:35 PM
Chloroform	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Carbon tetrachloride	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Benzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Trichloroethene (TCE)	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Dichlorobromomethane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Dibromomethane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Toluene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
trans-1,3-Dichloropropene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Dibromochloromethane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,2-Dibromoethane (EDB)	ND	0.00100		µg/L	1	6/30/2017 1:55:35 PM
Chlorobenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Ethylbenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
m,p-Xylene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
o-Xylene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Styrene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Isopropylbenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Bromoform	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM

Analytical Report

Work Order: **1706364**
Date Reported: **7/6/2017**

Client: Environmental Partners, Inc.
Collection Date: 6/30/2017 7:05:00 AM
Project: WA Industries
Lab ID: 1706364-002
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R37213		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
n-Propylbenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Bromobenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
2-Chlorotoluene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
4-Chlorotoluene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
tert-Butylbenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	6/30/2017 1:55:35 PM
sec-Butylbenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
n-Butylbenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	6/30/2017 1:55:35 PM
Naphthalene	ND	0.100		µg/L	1	6/30/2017 1:55:35 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	6/30/2017 1:55:35 PM
Surr: Dibromofluoromethane	101	61.1 - 128		%Rec	1	6/30/2017 1:55:35 PM
Surr: Toluene-d8	97.4	66 - 138		%Rec	1	6/30/2017 1:55:35 PM
Surr: 1-Bromo-4-fluorobenzene	93.4	64.7 - 128		%Rec	1	6/30/2017 1:55:35 PM

Work Order: 1706364
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1706364-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **6/30/2017** RunNo: **37213**
Client ID: **AIR-EFF** Batch ID: **R37213** Analysis Date: **6/30/2017** SeqNo: **715124**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	Q
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	Q
cis-1,2-Dichloroethene	0.671	0.100						0.6969	3.72	30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.100						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Dichlorobromomethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.00100						0		30	

Work Order: 1706364
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1706364-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **6/30/2017** RunNo: **37213**
Client ID: **AIR-EFF** Batch ID: **R37213** Analysis Date: **6/30/2017** SeqNo: **715124**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.52		2.500		101	61.1	128		0		
Surr: Toluene-d8	2.44		2.500		97.5	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.37		2.500		94.9	64.7	128		0		

Work Order: 1706364
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1706364-002AREP** SampType: **REP** Units: **µg/L** Prep Date: **6/30/2017** RunNo: **37213**
Client ID: **AIR-EFF** Batch ID: **R37213** Analysis Date: **6/30/2017** SeqNo: **715124**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-R37213** SampType: **LCS** Units: **µg/L** Prep Date: **6/30/2017** RunNo: **37213**
Client ID: **LCSW** Batch ID: **R37213** Analysis Date: **6/30/2017** SeqNo: **715128**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.39	0.100	2.000	0	69.6	38.8	143				
Chloromethane	1.78	0.100	2.000	0	88.9	42.5	131				
Vinyl chloride	1.82	0.0200	2.000	0	91.0	56.2	130				
Bromomethane	1.86	0.100	2.000	0	93.2	45.4	138				
Trichlorofluoromethane	1.88	0.100	2.000	0	94.2	64.7	129				
Chloroethane	1.96	0.100	2.000	0	97.8	62.5	123				
1,1-Dichloroethene	2.00	0.100	2.000	0	99.8	60.7	146				
Methylene chloride	2.04	0.100	2.000	0	102	60.3	135				
trans-1,2-Dichloroethene	2.06	0.100	2.000	0	103	71.3	129				
Methyl tert-butyl ether (MTBE)	2.06	0.100	2.000	0	103	59.3	138				
1,1-Dichloroethane	2.07	0.100	2.000	0	103	71.3	129				
2,2-Dichloropropane	2.06	0.200	2.000	0	103	37.8	132				
cis-1,2-Dichloroethene	2.09	0.100	2.000	0	104	67.5	127				
Chloroform	2.09	0.100	2.000	0	105	70.3	123				
1,1,1-Trichloroethane (TCA)	2.06	0.100	2.000	0	103	67.9	134				
1,1-Dichloropropene	2.06	0.100	2.000	0	103	72.1	133				
Carbon tetrachloride	1.98	0.100	2.000	0	98.8	64.4	133				
1,2-Dichloroethane (EDC)	2.04	0.100	2.000	0	102	65.8	126				
Benzene	2.11	0.100	2.000	0	106	67.1	132				
Trichloroethene (TCE)	2.13	0.100	2.000	0	106	71.9	130				
1,2-Dichloropropane	2.13	0.100	2.000	0	107	71.9	131				
Dichlorobromomethane	2.29	0.100	2.000	0	114	70	130				
Dibromomethane	2.17	0.100	2.000	0	109	74.2	125				
cis-1,3-Dichloropropene	2.11	0.100	2.000	0	105	62.8	135				

Work Order: 1706364
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R37213** SampType: **LCS** Units: **µg/L** Prep Date: **6/30/2017** RunNo: **37213**
Client ID: **LCSW** Batch ID: **R37213** Analysis Date: **6/30/2017** SeqNo: **715128**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	1.99	0.100	2.000	0	99.4	73.6	127				
trans-1,3-Dichloropropene	2.21	0.100	2.000	0	110	58.1	138				
1,1,2-Trichloroethane	2.16	0.100	2.000	0	108	65.4	128				
1,3-Dichloropropane	2.16	0.100	2.000	0	108	71.9	131				
Tetrachloroethene (PCE)	2.04	0.100	2.000	0	102	52.4	140				
Dibromochloromethane	2.34	0.100	2.000	0	117	68.7	139				
1,2-Dibromoethane (EDB)	2.29	0.00100	2.000	0	114	71.2	129				
Chlorobenzene	2.00	0.100	2.000	0	100	77.2	122				
1,1,1,2-Tetrachloroethane	2.10	0.100	2.000	0	105	76.2	130				
Ethylbenzene	2.05	0.100	2.000	0	102	78	127				
m,p-Xylene	4.09	0.100	4.000	0	102	77.5	130				
o-Xylene	2.04	0.100	2.000	0	102	77.6	126				
Styrene	2.06	0.100	2.000	0	103	66.8	137				
Isopropylbenzene	2.04	0.100	2.000	0	102	75.9	133				
Bromoform	2.25	0.100	2.000	0	113	54.1	146				
1,1,2,2-Tetrachloroethane	2.09	0.100	2.000	0	104	68	134				
n-Propylbenzene	2.06	0.100	2.000	0	103	77.1	133				
Bromobenzene	2.09	0.100	2.000	0	104	71.1	131				
1,3,5-Trimethylbenzene	2.04	0.100	2.000	0	102	76.2	133				
2-Chlorotoluene	2.06	0.100	2.000	0	103	67.1	137				
4-Chlorotoluene	2.06	0.100	2.000	0	103	70.7	132				
tert-Butylbenzene	2.05	0.100	2.000	0	103	71.3	139				
1,2,3-Trichloropropane	2.25	0.100	2.000	0	113	70.8	132				
1,2,4-Trichlorobenzene	2.05	0.200	2.000	0	103	61.4	139				
sec-Butylbenzene	2.09	0.100	2.000	0	104	77.4	136				
4-Isopropyltoluene	2.11	0.100	2.000	0	106	78.1	131				
1,3-Dichlorobenzene	2.02	0.100	2.000	0	101	73.5	125				
1,4-Dichlorobenzene	1.98	0.100	2.000	0	99.2	71.4	125				
n-Butylbenzene	2.07	0.100	2.000	0	103	69.8	138				
1,2-Dichlorobenzene	2.04	0.100	2.000	0	102	74.2	123				
1,2-Dibromo-3-chloropropane	2.54	0.100	2.000	0	127	53.6	155				

Work Order: 1706364
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R37213** SampType: **LCS** Units: **µg/L** Prep Date: **6/30/2017** RunNo: **37213**
Client ID: **LCSW** Batch ID: **R37213** Analysis Date: **6/30/2017** SeqNo: **715128**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	2.06	0.100	2.000	0	103	72.3	133				
Hexachlorobutadiene	2.08	0.400	2.000	0	104	60.9	141				
Naphthalene	2.23	0.100	2.000	0	111	58.2	140				
1,2,3-Trichlorobenzene	2.10	0.400	2.000	0	105	61.3	133				
Surr: Dibromofluoromethane	2.61		2.500		104	61.1	128				
Surr: Toluene-d8	2.53		2.500		101	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.58		2.500		103	64.7	128				

Sample ID **MB-R37213** SampType: **MBLK** Units: **µg/L** Prep Date: **6/30/2017** RunNo: **37213**
Client ID: **MBLKW** Batch ID: **R37213** Analysis Date: **6/30/2017** SeqNo: **715129**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									Q
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									Q
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									

Work Order: 1706364
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R37213** SampType: **MBLK** Units: **µg/L** Prep Date: **6/30/2017** RunNo: **37213**
Client ID: **MBLKW** Batch ID: **R37213** Analysis Date: **6/30/2017** SeqNo: **715129**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.100									
1,2-Dichloropropane	ND	0.100									
Dichlorobromomethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									
trans-1,3-Dichloropropene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.00100									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									

Work Order: 1706364
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-R37213** SampType: **MBLK** Units: **µg/L** Prep Date: **6/30/2017** RunNo: **37213**
Client ID: **MBLKW** Batch ID: **R37213** Analysis Date: **6/30/2017** SeqNo: **715129**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.52		2.500		101	61.1	128				
Surr: Toluene-d8	2.38		2.500		95.2	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.38		2.500		95.1	64.7	128				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1706364**
Logged by:	**Clare Griggs**	Date Received:	**6/30/2017 9:48:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 6/30/17 Page: 1 of: 1

Laboratory Project No (Internal): 1706364

Special Remarks: Please provide EDD

Project Name: WA Industries

Project No: 64001

Client: EPI

Address: 1180 NW Maple St.

Location: 825 S. Dakota St.

City, State, Zip: Issaquah, WA 98027

Collected by: J. Sherod

Telephone: 425-395-0600

Reports to (PM): Sean Trimble, Joe Sherod

Fax:

Email (PM): sean@epi-wa.com, joes@epi-wa.com

Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1 AIR-INF	Canister / Flow Reg.	6/30/17 Date 0700 Time	S	TB	1L	.5 min		Pressure Date	Pressure Time	Pressure Time	VOCs by 8260c		
2 AIR-EFF	Canister / Flow Reg	6/30/17 Date 0705 Time	S	TB	1L	.5 min		Pressure Date	Pressure Time	Pressure Time	VOCs by 8260c		
3	Canister / Flow Reg	Date / Time						Pressure Date	Pressure Time	Pressure Time			
4	Canister / Flow Reg	Date / Time						Pressure Date	Pressure Time	Pressure Time			
5	Canister / Flow Reg	Date / Time						Pressure Date	Pressure Time	Pressure Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	6/30/17 / 0948	x	6/30/17 0948
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1712041

December 12, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 4 sample(s) on 12/5/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/12/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1712041

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1712041-001	S2-EFF-1204A	12/04/2017 9:40 AM	12/05/2017 10:30 AM
1712041-002	S2-EFF-1204B	12/04/2017 10:40 AM	12/05/2017 10:30 AM
1712041-003	S2-EFF-1204C	12/04/2017 1:45 PM	12/05/2017 10:30 AM
1712041-004	S2-EFF-1205A	12/05/2017 8:00 AM	12/05/2017 10:30 AM

Case Narrative

WO#: **1712041**
Date: **12/12/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 12/4/2017 9:40:00 AM

Project: WA Industries

Lab ID: 1712041-001 **Matrix:** Air

Client Sample ID: S2-EFF-1204A

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19105 Analyst: MW

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Chloromethane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Vinyl chloride	ND	0.0200		µg/L	1	12/6/2017 12:19:40 PM
Bromomethane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Chloroethane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Methylene chloride	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	12/6/2017 12:19:40 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Chloroform	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Carbon tetrachloride	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Benzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Trichloroethene (TCE)	ND	0.0500		µg/L	1	12/6/2017 12:19:40 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Bromodichloromethane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Dibromomethane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Toluene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Dibromochloromethane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/6/2017 12:19:40 PM
Chlorobenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Ethylbenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
m,p-Xylene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
o-Xylene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Styrene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Isopropylbenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Bromoform	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM

Analytical Report

Work Order: **1712041**

Date Reported: **12/12/2017**

Client: Environmental Partners, Inc. **Collection Date:** 12/4/2017 9:40:00 AM

Project: WA Industries

Lab ID: 1712041-001 **Matrix:** Air

Client Sample ID: S2-EFF-1204A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19105		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
n-Propylbenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Bromobenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
2-Chlorotoluene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
4-Chlorotoluene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
tert-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/6/2017 12:19:40 PM
sec-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
n-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/6/2017 12:19:40 PM
Naphthalene	ND	0.100		µg/L	1	12/6/2017 12:19:40 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/6/2017 12:19:40 PM
Surr: Dibromofluoromethane	104	56.4 - 141		%Rec	1	12/6/2017 12:19:40 PM
Surr: Toluene-d8	97.7	66 - 138		%Rec	1	12/6/2017 12:19:40 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	96.6	64.7 - 128		%Rec	1	12/6/2017 12:19:40 PM

Client: Environmental Partners, Inc. **Collection Date:** 12/4/2017 10:40:00 AM

Project: WA Industries

Lab ID: 1712041-002 **Matrix:** Air

Client Sample ID: S2-EFF-1204B

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19105 Analyst: MW

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Chloromethane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Vinyl chloride	ND	0.0200		µg/L	1	12/6/2017 12:50:18 PM
Bromomethane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Chloroethane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Methylene chloride	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	12/6/2017 12:50:18 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Chloroform	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Carbon tetrachloride	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Benzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Trichloroethene (TCE)	0.276	0.0500		µg/L	1	12/6/2017 12:50:18 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Bromodichloromethane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Dibromomethane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Toluene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Dibromochloromethane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/6/2017 12:50:18 PM
Chlorobenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Ethylbenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
m,p-Xylene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
o-Xylene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Styrene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Isopropylbenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Bromoform	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM

Analytical Report

Work Order: **1712041**

Date Reported: **12/12/2017**

Client: Environmental Partners, Inc.

Collection Date: 12/4/2017 10:40:00 AM

Project: WA Industries

Lab ID: 1712041-002

Matrix: Air

Client Sample ID: **S2-EFF-1204B**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19105		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
n-Propylbenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Bromobenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
2-Chlorotoluene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
4-Chlorotoluene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
tert-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/6/2017 12:50:18 PM
sec-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
n-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/6/2017 12:50:18 PM
Naphthalene	ND	0.100		µg/L	1	12/6/2017 12:50:18 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/6/2017 12:50:18 PM
Surr: Dibromofluoromethane	104	56.4 - 141		%Rec	1	12/6/2017 12:50:18 PM
Surr: Toluene-d8	97.0	66 - 138		%Rec	1	12/6/2017 12:50:18 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	95.9	64.7 - 128		%Rec	1	12/6/2017 12:50:18 PM

Client: Environmental Partners, Inc. **Collection Date:** 12/4/2017 1:45:00 PM

Project: WA Industries

Lab ID: 1712041-003 **Matrix:** Air

Client Sample ID: S2-EFF-1204C

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19105 Analyst: MW

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Chloromethane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Vinyl chloride	ND	0.0200		µg/L	1	12/6/2017 1:20:55 PM
Bromomethane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Chloroethane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Methylene chloride	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	12/6/2017 1:20:55 PM
cis-1,2-Dichloroethene	0.236	0.100		µg/L	1	12/6/2017 1:20:55 PM
Chloroform	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Carbon tetrachloride	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Benzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Trichloroethene (TCE)	1.68	0.0500		µg/L	1	12/6/2017 1:20:55 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Bromodichloromethane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Dibromomethane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Toluene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Dibromochloromethane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/6/2017 1:20:55 PM
Chlorobenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Ethylbenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
m,p-Xylene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
o-Xylene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Styrene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Isopropylbenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Bromoform	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM

Analytical Report

Work Order: **1712041**

Date Reported: **12/12/2017**

Client: Environmental Partners, Inc. **Collection Date:** 12/4/2017 1:45:00 PM

Project: WA Industries

Lab ID: 1712041-003 **Matrix:** Air

Client Sample ID: S2-EFF-1204C

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C			Batch ID: 19105			Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
n-Propylbenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Bromobenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
2-Chlorotoluene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
4-Chlorotoluene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
tert-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/6/2017 1:20:55 PM
sec-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
n-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/6/2017 1:20:55 PM
Naphthalene	ND	0.100		µg/L	1	12/6/2017 1:20:55 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/6/2017 1:20:55 PM
Surr: Dibromofluoromethane	103	56.4 - 141		%Rec	1	12/6/2017 1:20:55 PM
Surr: Toluene-d8	98.9	66 - 138		%Rec	1	12/6/2017 1:20:55 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	95.4	64.7 - 128		%Rec	1	12/6/2017 1:20:55 PM

Client: Environmental Partners, Inc. **Collection Date:** 12/5/2017 8:00:00 AM

Project: WA Industries

Lab ID: 1712041-004 **Matrix:** Air

Client Sample ID: S2-EFF-1205A

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19105 Analyst: MW

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Chloromethane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Vinyl chloride	ND	0.0200		µg/L	1	12/6/2017 1:51:26 PM
Bromomethane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Chloroethane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Methylene chloride	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	12/6/2017 1:51:26 PM
cis-1,2-Dichloroethene	0.140	0.100		µg/L	1	12/6/2017 1:51:26 PM
Chloroform	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Carbon tetrachloride	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Benzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Trichloroethene (TCE)	1.11	0.0500		µg/L	1	12/6/2017 1:51:26 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Bromodichloromethane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Dibromomethane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Toluene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Dibromochloromethane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/6/2017 1:51:26 PM
Chlorobenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Ethylbenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
m,p-Xylene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
o-Xylene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Styrene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Isopropylbenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Bromoform	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM

Analytical Report

Work Order: **1712041**

Date Reported: **12/12/2017**

Client: Environmental Partners, Inc. **Collection Date:** 12/5/2017 8:00:00 AM

Project: WA Industries

Lab ID: 1712041-004 **Matrix:** Air

Client Sample ID: S2-EFF-1205A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19105		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
n-Propylbenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Bromobenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
2-Chlorotoluene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
4-Chlorotoluene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
tert-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/6/2017 1:51:26 PM
sec-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
n-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/6/2017 1:51:26 PM
Naphthalene	ND	0.100		µg/L	1	12/6/2017 1:51:26 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/6/2017 1:51:26 PM
Surr: Dibromofluoromethane	103	56.4 - 141		%Rec	1	12/6/2017 1:51:26 PM
Surr: Toluene-d8	98.4	66 - 138		%Rec	1	12/6/2017 1:51:26 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	95.8	64.7 - 128		%Rec	1	12/6/2017 1:51:26 PM

Work Order: 1712041
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712041-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **S2-EFF-1204A** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777112**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.0500						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	

Work Order: 1712041
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712041-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **S2-EFF-1204A** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777112**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.57		2.500		103	61.1	128		0		
Surr: Toluene-d8	2.36		2.500		94.3	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.33		2.500		93.3	64.7	128		0		

Work Order: 1712041
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**1712041-001AREP**	SampType:	**REP**		Units:	**µg/L**	Prep Date:	**12/6/2017**	RunNo:	**40338**	
Client ID:	**S2-EFF-1204A**	Batch ID:	**19105**				Analysis Date:	**12/6/2017**	SeqNo:	**777112**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**MB-19105**	SampType:	**MBLK**		Units:	**µg/L**	Prep Date:	**12/6/2017**	RunNo:	**40338**	
Client ID:	**MBLKW**	Batch ID:	**19105**				Analysis Date:	**12/6/2017**	SeqNo:	**777111**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									

Work Order: 1712041
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19105** SampType: **MBLK** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **MBLKW** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									

Work Order: 1712041
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19105** SampType: **MBLK** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **MBLKW** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.48		2.500		99.3	56.4	141				
Surr: Toluene-d8	2.44		2.500		97.7	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.37		2.500		95.0	64.7	128				

Sample ID **LCS-19105** SampType: **LCS** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **LCSW** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	2.34	0.100	2.000	0	117	38.8	143				
Chloromethane	2.12	0.100	2.000	0	106	42.5	131				
Vinyl chloride	2.06	0.0200	2.000	0	103	56.2	130				
Bromomethane	1.76	0.100	2.000	0	87.9	45.4	138				
Trichlorofluoromethane (CFC-11)	2.08	0.100	2.000	0	104	64.7	129				
Chloroethane	1.96	0.100	2.000	0	98.1	62.5	123				
1,1-Dichloroethene	2.34	0.100	2.000	0	117	60.7	146				
Methylene chloride	2.26	0.100	2.000	0	113	60.3	135				
trans-1,2-Dichloroethene	2.28	0.100	2.000	0	114	71.3	129				
Methyl tert-butyl ether (MTBE)	2.12	0.100	2.000	0	106	59.3	138				
1,1-Dichloroethane	2.23	0.100	2.000	0	112	71.3	129				
2,2-Dichloropropane	2.06	0.200	2.000	0	103	37.8	132				
cis-1,2-Dichloroethene	2.20	0.100	2.000	0	110	67.5	127				
Chloroform	2.26	0.100	2.000	0	113	70.3	123				
1,1,1-Trichloroethane (TCA)	2.23	0.100	2.000	0	111	67.9	134				
1,1-Dichloropropene	2.22	0.100	2.000	0	111	72.1	133				
Carbon tetrachloride	1.99	0.100	2.000	0	99.5	64.4	133				
1,2-Dichloroethane (EDC)	2.18	0.100	2.000	0	109	65.8	126				
Benzene	2.22	0.100	2.000	0	111	67.1	132				

Work Order: 1712041
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19105** SampType: **LCS** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **LCSW** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	2.30	0.0500	2.000	0	115	71.9	130				
1,2-Dichloropropane	2.16	0.100	2.000	0	108	71.9	131				
Bromodichloromethane	2.18	0.100	2.000	0	109	70	130				
Dibromomethane	2.26	0.100	2.000	0	113	74.2	125				
cis-1,3-Dichloropropene	1.94	0.100	2.000	0	96.8	62.8	135				
Toluene	2.20	0.100	2.000	0	110	73.6	127				
trans-1,3-Dichloropropylene	2.24	0.100	2.000	0	112	58.1	138				
1,1,2-Trichloroethane	2.18	0.100	2.000	0	109	65.4	128				
1,3-Dichloropropane	2.12	0.100	2.000	0	106	71.9	131				
Tetrachloroethene (PCE)	2.32	0.100	2.000	0	116	52.4	140				
Dibromochloromethane	2.07	0.100	2.000	0	103	68.7	139				
1,2-Dibromoethane (EDB)	2.19	0.0250	2.000	0	110	71.2	129				
Chlorobenzene	2.33	0.100	2.000	0	116	77.2	122				
1,1,1,2-Tetrachloroethane	2.27	0.100	2.000	0	114	76.2	130				
Ethylbenzene	2.33	0.100	2.000	0	116	78	127				
m,p-Xylene	4.68	0.100	4.000	0	117	77.5	130				
o-Xylene	2.31	0.100	2.000	0	115	77.6	126				
Styrene	2.29	0.100	2.000	0	114	66.8	137				
Isopropylbenzene	2.38	0.100	2.000	0	119	75.9	133				
Bromoform	2.18	0.100	2.000	0	109	54.1	146				
1,1,2,2-Tetrachloroethane	2.24	0.100	2.000	0	112	68	134				
n-Propylbenzene	2.33	0.100	2.000	0	116	77.1	133				
Bromobenzene	2.35	0.100	2.000	0	118	71.1	131				
1,3,5-Trimethylbenzene	2.36	0.100	2.000	0	118	76.2	133				
2-Chlorotoluene	2.33	0.100	2.000	0	117	67.1	137				
4-Chlorotoluene	2.28	0.100	2.000	0	114	70.7	132				
tert-Butylbenzene	2.40	0.100	2.000	0	120	71.3	139				
1,2,3-Trichloropropane	2.19	0.100	2.000	0	110	70.8	132				
1,2,4-Trichlorobenzene	1.86	0.200	2.000	0	93.0	61.4	139				
sec-Butylbenzene	2.33	0.100	2.000	0	116	77.4	136				
4-Isopropyltoluene	2.29	0.100	2.000	0	115	78.1	131				

Work Order: 1712041
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19105** SampType: **LCS** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **LCSW** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	2.28	0.100	2.000	0	114	73.5	125				
1,4-Dichlorobenzene	2.30	0.100	2.000	0	115	71.4	125				
n-Butylbenzene	2.16	0.100	2.000	0	108	69.8	138				
1,2-Dichlorobenzene	2.27	0.100	2.000	0	113	74.2	123				
1,2-Dibromo-3-chloropropane	2.00	0.100	2.000	0	99.9	53.6	155				
1,2,4-Trimethylbenzene	2.30	0.100	2.000	0	115	72.3	133				
Hexachlorobutadiene	2.38	0.400	2.000	0	119	60.9	141				
Naphthalene	1.80	0.100	2.000	0	89.9	58.2	140				
1,2,3-Trichlorobenzene	1.86	0.400	2.000	0	93.1	61.3	133				
Surr: Dibromofluoromethane	2.63		2.500		105	56.4	141				
Surr: Toluene-d8	2.51		2.500		100	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.80		2.500		112	64.7	128				

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1712041**
Logged by:	**Clare Griggs**	Date Received:	**12/5/2017 10:30:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 12/5/17 Page: 1 of: 1

Project Name: WA INDUSTRIES

Project No: 64001.6

Location: SEATTLE

Collected by: S TRIMBLE

Reports to (PM): S. TRIMBLE

Email (PM): seantr@epi-wa.com

Laboratory Project No (Internal): 1712041

Special Remarks:

Client: EPI

Address: 1180 NW MAPLE # 310

City, State, Zip: ISSAQUAH, WA 98027

Telephone: 425-395-0010

Fax:

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	SZ-EFF-1204A	Canister / Flow Reg	12/4/17 0940	AIR	TB				Pressure / Date	Pressure / Time	Pressure / Time	VOCs BY 8260		
2	SZ-EFF-1204B	Canister / Flow Reg	12/4/17 1040	AIR					Pressure / Date	Pressure / Time	Pressure / Time			
3	SZ-EFF-1204C	1 / Flow Reg	12/4/17 1345	AIR					Pressure / Date	Pressure / Time	Pressure / Time			
4	SZ-EFF-1205A	Canister / Flow Reg	12/5/17 0800	AIR					Pressure / Date	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished: x [signature] Date/Time: 12/5/17 1030

Relinquished: x Date/Time:

Received: x [signature] Date/Time: 12/5/17 1030

Received: x Date/Time:

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1712054

December 13, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 2 sample(s) on 12/6/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/13/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1712054

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1712054-001	S2-EFF-1205B	12/05/2017 1:30 PM	12/06/2017 9:39 AM
1712054-002	S2-EFF-1206A	12/06/2017 8:30 AM	12/06/2017 9:39 AM

Case Narrative

WO#: **1712054**
Date: **12/13/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 12/5/2017 1:30:00 PM
Project: WA Industries
Lab ID: 1712054-001 **Matrix:** Air
Client Sample ID: **S2-EFF-1205B**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19105 Analyst: MW

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Chloromethane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Vinyl chloride	ND	0.0200		µg/L	1	12/6/2017 2:22:02 PM
Bromomethane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Chloroethane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Methylene chloride	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	12/6/2017 2:22:02 PM
cis-1,2-Dichloroethene	0.182	0.100		µg/L	1	12/6/2017 2:22:02 PM
Chloroform	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Carbon tetrachloride	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Benzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Trichloroethene (TCE)	1.25	0.0500		µg/L	1	12/6/2017 2:22:02 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Bromodichloromethane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Dibromomethane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Toluene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Dibromochloromethane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/6/2017 2:22:02 PM
Chlorobenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Ethylbenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
m,p-Xylene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
o-Xylene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Styrene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Isopropylbenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Bromoform	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM

Analytical Report

Work Order: **1712054**
Date Reported: **12/13/2017**

Client: Environmental Partners, Inc.
Collection Date: 12/5/2017 1:30:00 PM
Project: WA Industries
Lab ID: 1712054-001
Matrix: Air
Client Sample ID: **S2-EFF-1205B**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19105		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
n-Propylbenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Bromobenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
2-Chlorotoluene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
4-Chlorotoluene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
tert-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/6/2017 2:22:02 PM
sec-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
n-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/6/2017 2:22:02 PM
Naphthalene	ND	0.100		µg/L	1	12/6/2017 2:22:02 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/6/2017 2:22:02 PM
Surr: Dibromofluoromethane	101	56.4 - 141		%Rec	1	12/6/2017 2:22:02 PM
Surr: Toluene-d8	95.7	66 - 138		%Rec	1	12/6/2017 2:22:02 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	97.6	64.7 - 128		%Rec	1	12/6/2017 2:22:02 PM

Client: Environmental Partners, Inc. **Collection Date:** 12/6/2017 8:30:00 AM
Project: WA Industries
Lab ID: 1712054-002 **Matrix:** Air
Client Sample ID: **S2-EFF-1206A**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19105		Analyst: MW
Dichlorodifluoromethane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Chloromethane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Vinyl chloride	ND	0.0200		µg/L	1	12/6/2017 2:52:39 PM
Bromomethane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Chloroethane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Methylene chloride	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	12/6/2017 2:52:39 PM
cis-1,2-Dichloroethene	0.252	0.100		µg/L	1	12/6/2017 2:52:39 PM
Chloroform	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Carbon tetrachloride	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Benzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Trichloroethene (TCE)	2.16	0.0500		µg/L	1	12/6/2017 2:52:39 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Bromodichloromethane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Dibromomethane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Toluene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Tetrachloroethene (PCE)	0.155	0.100		µg/L	1	12/6/2017 2:52:39 PM
Dibromochloromethane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/6/2017 2:52:39 PM
Chlorobenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Ethylbenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
m,p-Xylene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
o-Xylene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Styrene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Isopropylbenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Bromoform	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM

Analytical Report

Work Order: **1712054**

Date Reported: **12/13/2017**

Client: Environmental Partners, Inc. **Collection Date:** 12/6/2017 8:30:00 AM

Project: WA Industries

Lab ID: 1712054-002 **Matrix:** Air

Client Sample ID: S2-EFF-1206A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19105		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
n-Propylbenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Bromobenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
2-Chlorotoluene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
4-Chlorotoluene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
tert-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/6/2017 2:52:39 PM
sec-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
n-Butylbenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/6/2017 2:52:39 PM
Naphthalene	ND	0.100		µg/L	1	12/6/2017 2:52:39 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/6/2017 2:52:39 PM
Surr: Dibromofluoromethane	103	56.4 - 141		%Rec	1	12/6/2017 2:52:39 PM
Surr: Toluene-d8	94.3	66 - 138		%Rec	1	12/6/2017 2:52:39 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	98.9	64.7 - 128		%Rec	1	12/6/2017 2:52:39 PM

Work Order: 1712054
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712041-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **BATCH** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777112**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.0500						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	

Work Order: 1712054
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712041-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **BATCH** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777112**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.57		2.500		103	61.1	128		0		
Surr: Toluene-d8	2.36		2.500		94.3	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.33		2.500		93.3	64.7	128		0		

Work Order: 1712054
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712041-001AREP**	SampType: **REP**			Units: **µg/L**		Prep Date: **12/6/2017**		RunNo: **40338**			
Client ID: **BATCH**	Batch ID: **19105**					Analysis Date: **12/6/2017**		SeqNo: **777112**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **MB-19105**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **12/6/2017**		RunNo: **40338**			
Client ID: **MBLKW**	Batch ID: **19105**					Analysis Date: **12/6/2017**		SeqNo: **777111**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									

Work Order: 1712054
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19105** SampType: **MBLK** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **MBLKW** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									

Work Order: 1712054
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19105** SampType: **MBLK** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **MBLKW** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.48		2.500		99.3	56.4	141				
Surr: Toluene-d8	2.44		2.500		97.7	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.37		2.500		95.0	64.7	128				

Sample ID **LCS-19105** SampType: **LCS** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **LCSW** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	2.34	0.100	2.000	0	117	38.8	143				
Chloromethane	2.12	0.100	2.000	0	106	42.5	131				
Vinyl chloride	2.06	0.0200	2.000	0	103	56.2	130				
Bromomethane	1.76	0.100	2.000	0	87.9	45.4	138				
Trichlorofluoromethane (CFC-11)	2.08	0.100	2.000	0	104	64.7	129				
Chloroethane	1.96	0.100	2.000	0	98.1	62.5	123				
1,1-Dichloroethene	2.34	0.100	2.000	0	117	60.7	146				
Methylene chloride	2.26	0.100	2.000	0	113	60.3	135				
trans-1,2-Dichloroethene	2.28	0.100	2.000	0	114	71.3	129				
Methyl tert-butyl ether (MTBE)	2.12	0.100	2.000	0	106	59.3	138				
1,1-Dichloroethane	2.23	0.100	2.000	0	112	71.3	129				
2,2-Dichloropropane	2.06	0.200	2.000	0	103	37.8	132				
cis-1,2-Dichloroethene	2.20	0.100	2.000	0	110	67.5	127				
Chloroform	2.26	0.100	2.000	0	113	70.3	123				
1,1,1-Trichloroethane (TCA)	2.23	0.100	2.000	0	111	67.9	134				
1,1-Dichloropropene	2.22	0.100	2.000	0	111	72.1	133				
Carbon tetrachloride	1.99	0.100	2.000	0	99.5	64.4	133				
1,2-Dichloroethane (EDC)	2.18	0.100	2.000	0	109	65.8	126				
Benzene	2.22	0.100	2.000	0	111	67.1	132				

Work Order: 1712054
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19105** SampType: **LCS** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **LCSW** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	2.30	0.0500	2.000	0	115	71.9	130				
1,2-Dichloropropane	2.16	0.100	2.000	0	108	71.9	131				
Bromodichloromethane	2.18	0.100	2.000	0	109	70	130				
Dibromomethane	2.26	0.100	2.000	0	113	74.2	125				
cis-1,3-Dichloropropene	1.94	0.100	2.000	0	96.8	62.8	135				
Toluene	2.20	0.100	2.000	0	110	73.6	127				
trans-1,3-Dichloropropylene	2.24	0.100	2.000	0	112	58.1	138				
1,1,2-Trichloroethane	2.18	0.100	2.000	0	109	65.4	128				
1,3-Dichloropropane	2.12	0.100	2.000	0	106	71.9	131				
Tetrachloroethene (PCE)	2.32	0.100	2.000	0	116	52.4	140				
Dibromochloromethane	2.07	0.100	2.000	0	103	68.7	139				
1,2-Dibromoethane (EDB)	2.19	0.0250	2.000	0	110	71.2	129				
Chlorobenzene	2.33	0.100	2.000	0	116	77.2	122				
1,1,1,2-Tetrachloroethane	2.27	0.100	2.000	0	114	76.2	130				
Ethylbenzene	2.33	0.100	2.000	0	116	78	127				
m,p-Xylene	4.68	0.100	4.000	0	117	77.5	130				
o-Xylene	2.31	0.100	2.000	0	115	77.6	126				
Styrene	2.29	0.100	2.000	0	114	66.8	137				
Isopropylbenzene	2.38	0.100	2.000	0	119	75.9	133				
Bromoform	2.18	0.100	2.000	0	109	54.1	146				
1,1,2,2-Tetrachloroethane	2.24	0.100	2.000	0	112	68	134				
n-Propylbenzene	2.33	0.100	2.000	0	116	77.1	133				
Bromobenzene	2.35	0.100	2.000	0	118	71.1	131				
1,3,5-Trimethylbenzene	2.36	0.100	2.000	0	118	76.2	133				
2-Chlorotoluene	2.33	0.100	2.000	0	117	67.1	137				
4-Chlorotoluene	2.28	0.100	2.000	0	114	70.7	132				
tert-Butylbenzene	2.40	0.100	2.000	0	120	71.3	139				
1,2,3-Trichloropropane	2.19	0.100	2.000	0	110	70.8	132				
1,2,4-Trichlorobenzene	1.86	0.200	2.000	0	93.0	61.4	139				
sec-Butylbenzene	2.33	0.100	2.000	0	116	77.4	136				
4-Isopropyltoluene	2.29	0.100	2.000	0	115	78.1	131				

Work Order: 1712054
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19105** SampType: **LCS** Units: **µg/L** Prep Date: **12/6/2017** RunNo: **40338**
Client ID: **LCSW** Batch ID: **19105** Analysis Date: **12/6/2017** SeqNo: **777110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	2.28	0.100	2.000	0	114	73.5	125				
1,4-Dichlorobenzene	2.30	0.100	2.000	0	115	71.4	125				
n-Butylbenzene	2.16	0.100	2.000	0	108	69.8	138				
1,2-Dichlorobenzene	2.27	0.100	2.000	0	113	74.2	123				
1,2-Dibromo-3-chloropropane	2.00	0.100	2.000	0	99.9	53.6	155				
1,2,4-Trimethylbenzene	2.30	0.100	2.000	0	115	72.3	133				
Hexachlorobutadiene	2.38	0.400	2.000	0	119	60.9	141				
Naphthalene	1.80	0.100	2.000	0	89.9	58.2	140				
1,2,3-Trichlorobenzene	1.86	0.400	2.000	0	93.1	61.3	133				
Surr: Dibromofluoromethane	2.63		2.500		105	56.4	141				
Surr: Toluene-d8	2.51		2.500		100	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.80		2.500		112	64.7	128				

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1712054**
Logged by:	**Brianna Barnes**	Date Received:	**12/6/2017 9:39:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 12/6/17 Page: 1 of: 1

Laboratory Project No (Internal): 1712054

Special Remarks: Provide EDD Table

Client: EPI

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

Project Name: WA Industries

Project No: 64001.6

Location: 825 S. Dakota St. Seattle, WA

Collected by: J. Sherrod

Reports to (PM): Sean Trimble

Email (PM): seant@epi-wa.com

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	S2-EFF-1205B	Canister / Flow Reg	12/5/17 Date / 1330 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260C		
2	S2-EFF-1206A	Canister / Flow Reg	12/6/17 Date / 0830 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260C		
3		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	12/6/17 / 0939	x Wayne	12/6/17 09:39
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- [ ] Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1712079

December 13, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 12/7/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/13/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1712079

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1712079-001	S2-EFF-1207A	12/07/2017 11:00 AM	12/07/2017 2:12 PM

Case Narrative

WO#: **1712079**
Date: **12/13/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 12/7/2017 11:00:00 AM
Project: WA Industries
Lab ID: 1712079-001 **Matrix:** Air
Client Sample ID: S2-EFF-1207A

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19174 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100	Q	µg/L	1	12/8/2017 2:22:54 PM
Chloromethane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Vinyl chloride	ND	0.0200		µg/L	1	12/8/2017 2:22:54 PM
Bromomethane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Chloroethane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Methylene chloride	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	12/8/2017 2:22:54 PM
cis-1,2-Dichloroethene	0.221	0.100		µg/L	1	12/8/2017 2:22:54 PM
Chloroform	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Carbon tetrachloride	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Benzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Trichloroethene (TCE)	1.69	0.0500		µg/L	1	12/8/2017 2:22:54 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Bromodichloromethane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Dibromomethane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Toluene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Tetrachloroethene (PCE)	0.114	0.100		µg/L	1	12/8/2017 2:22:54 PM
Dibromochloromethane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/8/2017 2:22:54 PM
Chlorobenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Ethylbenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
m,p-Xylene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
o-Xylene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Styrene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Isopropylbenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Bromoform	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM

Analytical Report

Work Order: **1712079**

Date Reported: **12/13/2017**

Client: Environmental Partners, Inc.

Collection Date: 12/7/2017 11:00:00 AM

Project: WA Industries

Lab ID: 1712079-001

Matrix: Air

Client Sample ID: S2-EFF-1207A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19174		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
n-Propylbenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Bromobenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
2-Chlorotoluene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
4-Chlorotoluene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
tert-Butylbenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/8/2017 2:22:54 PM
sec-Butylbenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
n-Butylbenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/8/2017 2:22:54 PM
Naphthalene	ND	0.100		µg/L	1	12/8/2017 2:22:54 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/8/2017 2:22:54 PM
Surr: Dibromofluoromethane	101	56.4 - 141		%Rec	1	12/8/2017 2:22:54 PM
Surr: Toluene-d8	98.7	66 - 138		%Rec	1	12/8/2017 2:22:54 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	97.7	64.7 - 128		%Rec	1	12/8/2017 2:22:54 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1712079
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19174** SampType: **LCS** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **LCSW** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779070**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.40	0.100	2.000	0	70.0	38.8	143				
Chloromethane	1.70	0.100	2.000	0	85.2	42.5	131				
Vinyl chloride	1.76	0.0200	2.000	0	88.1	56.2	130				
Bromomethane	1.81	0.100	2.000	0	90.7	45.4	138				
Trichlorofluoromethane (CFC-11)	1.83	0.100	2.000	0	91.3	64.7	129				
Chloroethane	1.73	0.100	2.000	0	86.4	62.5	123				
1,1-Dichloroethene	2.20	0.100	2.000	0	110	60.7	146				
Methylene chloride	2.16	0.100	2.000	0	108	60.3	135				
trans-1,2-Dichloroethene	2.09	0.100	2.000	0	105	71.3	129				
Methyl tert-butyl ether (MTBE)	1.98	0.100	2.000	0	99.0	59.3	138				
1,1-Dichloroethane	2.08	0.100	2.000	0	104	71.3	129				
2,2-Dichloropropane	1.92	0.200	2.000	0	96.0	37.8	132				
cis-1,2-Dichloroethene	2.12	0.100	2.000	0	106	67.5	127				
Chloroform	2.11	0.100	2.000	0	106	70.3	123				
1,1,1-Trichloroethane (TCA)	2.10	0.100	2.000	0	105	67.9	134				
1,1-Dichloropropene	2.09	0.100	2.000	0	105	72.1	133				
Carbon tetrachloride	1.93	0.100	2.000	0	96.6	64.4	133				
1,2-Dichloroethane (EDC)	2.05	0.100	2.000	0	103	65.8	126				
Benzene	2.13	0.100	2.000	0	106	67.1	132				
Trichloroethene (TCE)	2.11	0.0500	2.000	0	105	71.9	130				
1,2-Dichloropropane	2.04	0.100	2.000	0	102	71.9	131				
Bromodichloromethane	2.02	0.100	2.000	0	101	70	130				
Dibromomethane	2.11	0.100	2.000	0	105	74.2	125				
cis-1,3-Dichloropropene	1.85	0.100	2.000	0	92.6	62.8	135				
Toluene	2.17	0.100	2.000	0	108	73.6	127				
trans-1,3-Dichloropropylene	2.16	0.100	2.000	0	108	58.1	138				
1,1,2-Trichloroethane	2.15	0.100	2.000	0	108	65.4	128				
1,3-Dichloropropane	2.10	0.100	2.000	0	105	71.9	131				
Tetrachloroethene (PCE)	2.24	0.100	2.000	0	112	52.4	140				
Dibromochloromethane	1.96	0.100	2.000	0	98.2	68.7	139				
1,2-Dibromoethane (EDB)	2.15	0.0250	2.000	0	107	71.2	129				

Work Order: 1712079
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19174** SampType: **LCS** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **LCSW** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779070**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	2.20	0.100	2.000	0	110	77.2	122				
1,1,1,2-Tetrachloroethane	2.10	0.100	2.000	0	105	76.2	130				
Ethylbenzene	2.22	0.100	2.000	0	111	78	127				
m,p-Xylene	4.38	0.100	4.000	0	109	77.5	130				
o-Xylene	2.19	0.100	2.000	0	110	77.6	126				
Styrene	2.10	0.100	2.000	0	105	66.8	137				
Isopropylbenzene	2.19	0.100	2.000	0	110	75.9	133				
Bromoform	1.87	0.100	2.000	0	93.4	54.1	146				
1,1,2,2-Tetrachloroethane	2.10	0.100	2.000	0	105	68	134				
n-Propylbenzene	2.09	0.100	2.000	0	104	77.1	133				
Bromobenzene	2.13	0.100	2.000	0	106	71.1	131				
1,3,5-Trimethylbenzene	2.10	0.100	2.000	0	105	76.2	133				
2-Chlorotoluene	2.15	0.100	2.000	0	107	67.1	137				
4-Chlorotoluene	2.03	0.100	2.000	0	101	70.7	132				
tert-Butylbenzene	2.10	0.100	2.000	0	105	71.3	139				
1,2,3-Trichloropropane	2.01	0.100	2.000	0	101	70.8	132				
1,2,4-Trichlorobenzene	1.75	0.200	2.000	0	87.4	61.4	139				
sec-Butylbenzene	2.05	0.100	2.000	0	102	77.4	136				
4-Isopropyltoluene	1.96	0.100	2.000	0	98.2	78.1	131				
1,3-Dichlorobenzene	2.16	0.100	2.000	0	108	73.5	125				
1,4-Dichlorobenzene	2.18	0.100	2.000	0	109	71.4	125				
n-Butylbenzene	2.00	0.100	2.000	0	100	69.8	138				
1,2-Dichlorobenzene	2.14	0.100	2.000	0	107	74.2	123				
1,2-Dibromo-3-chloropropane	1.80	0.100	2.000	0	89.8	53.6	155				
1,2,4-Trimethylbenzene	2.03	0.100	2.000	0	102	72.3	133				
Hexachlorobutadiene	2.27	0.400	2.000	0	114	60.9	141				
Naphthalene	1.83	0.100	2.000	0	91.4	58.2	140				
1,2,3-Trichlorobenzene	1.74	0.400	2.000	0	87.2	61.3	133				
Surr: Dibromofluoromethane	2.61		2.500		104	56.4	141				
Surr: Toluene-d8	2.59		2.500		103	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.73		2.500		109	64.7	128				

Work Order: 1712079
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**LCS-19174**	SampType:	**LCS**	Units:	**µg/L**	Prep Date:	**12/8/2017**	RunNo:	**40446**
Client ID:	**LCSW**	Batch ID:	**19174**			Analysis Date:	**12/8/2017**	SeqNo:	**779070**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**MB-19174**	SampType:	**MBLK**	Units:	**µg/L**	Prep Date:	**12/8/2017**	RunNo:	**40446**
Client ID:	**MBLKW**	Batch ID:	**19174**			Analysis Date:	**12/8/2017**	SeqNo:	**779071**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									Q
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									

Work Order: 1712079
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19174** SampType: **MBLK** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **MBLKW** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779071**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									

Work Order: 1712079
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19174** SampType: **MBLK** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **MBLKW** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779071**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.50		2.500		100	56.4	141				
Surr: Toluene-d8	2.48		2.500		99.3	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.33		2.500		93.3	64.7	128				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1712079-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **S2-EFF-1207A** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	Q
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	0.230	0.100						0.2211	3.97	30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	

Work Order: 1712079
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712079-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **S2-EFF-1207A** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	1.79	0.0500						1.690	5.45	30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	0.113	0.100						0.1145	1.25	30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	

Work Order: 1712079
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712079-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **S2-EFF-1207A** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.56		2.500		102	61.1	128		0		
Surr: Toluene-d8	2.42		2.500		96.6	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.46		2.500		98.2	64.7	128		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1712079**
Logged by:	**Brianna Barnes**	Date Received:	**12/7/2017 2:12:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Sample		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Internal): 1712079

Date: 12/7/17 Page: 1 of: 1

Special Remarks: Provide EDD Table

Project Name: WA Industries

Project No: 64001

Location: 825 S. Dakota St Seattle, WA

Collected by: J. Sherrod

Client: EPI

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98092

Telephone: 425-395-0010

Reports to (PM): Sean Trimble

Fax:

Email (PM): seant@epi-wa.com

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	S2-EFF-1207A	Canister / Flow Reg	12/7/17 Date 1100 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260c		
2		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
3		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	12/7/17 1412	x	12/07/17 14:12
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:
- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

COC Air 1.3- 2.22.17

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1712084

December 14, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 12/8/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/14/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1712084

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1712084-001	S2-EFF-1208A	12/08/2017 8:50 AM	12/08/2017 9:56 AM

Case Narrative

WO#: **1712084**
Date: **12/14/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 12/8/2017 8:50:00 AM
Project: WA Industries
Lab ID: 1712084-001 **Matrix:** Air
Client Sample ID: S2-EFF-1208A

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19174 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100	Q	µg/L	1	12/8/2017 2:53:26 PM
Chloromethane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Vinyl chloride	ND	0.0200		µg/L	1	12/8/2017 2:53:26 PM
Bromomethane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Chloroethane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Methylene chloride	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	12/8/2017 2:53:26 PM
cis-1,2-Dichloroethene	0.322	0.100		µg/L	1	12/8/2017 2:53:26 PM
Chloroform	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Carbon tetrachloride	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Benzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Trichloroethene (TCE)	2.86	0.0500		µg/L	1	12/8/2017 2:53:26 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Bromodichloromethane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Dibromomethane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Toluene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Tetrachloroethene (PCE)	0.293	0.100		µg/L	1	12/8/2017 2:53:26 PM
Dibromochloromethane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/8/2017 2:53:26 PM
Chlorobenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Ethylbenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
m,p-Xylene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
o-Xylene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Styrene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Isopropylbenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Bromoform	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM

Analytical Report

Work Order: **1712084**
Date Reported: **12/14/2017**

Client: Environmental Partners, Inc.
Collection Date: 12/8/2017 8:50:00 AM
Project: WA Industries
Lab ID: 1712084-001
Matrix: Air
Client Sample ID: **S2-EFF-1208A**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19174		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
n-Propylbenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Bromobenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
2-Chlorotoluene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
4-Chlorotoluene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
tert-Butylbenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/8/2017 2:53:26 PM
sec-Butylbenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
n-Butylbenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/8/2017 2:53:26 PM
Naphthalene	ND	0.100		µg/L	1	12/8/2017 2:53:26 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/8/2017 2:53:26 PM
Surr: Dibromofluoromethane	103	56.4 - 141		%Rec	1	12/8/2017 2:53:26 PM
Surr: Toluene-d8	100	66 - 138		%Rec	1	12/8/2017 2:53:26 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	97.6	64.7 - 128		%Rec	1	12/8/2017 2:53:26 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1712084
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19174** SampType: **LCS** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **LCSW** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779070**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.40	0.100	2.000	0	70.0	38.8	143				
Chloromethane	1.70	0.100	2.000	0	85.2	42.5	131				
Vinyl chloride	1.76	0.0200	2.000	0	88.1	56.2	130				
Bromomethane	1.81	0.100	2.000	0	90.7	45.4	138				
Trichlorofluoromethane (CFC-11)	1.83	0.100	2.000	0	91.3	64.7	129				
Chloroethane	1.73	0.100	2.000	0	86.4	62.5	123				
1,1-Dichloroethene	2.20	0.100	2.000	0	110	60.7	146				
Methylene chloride	2.16	0.100	2.000	0	108	60.3	135				
trans-1,2-Dichloroethene	2.09	0.100	2.000	0	105	71.3	129				
Methyl tert-butyl ether (MTBE)	1.98	0.100	2.000	0	99.0	59.3	138				
1,1-Dichloroethane	2.08	0.100	2.000	0	104	71.3	129				
2,2-Dichloropropane	1.92	0.200	2.000	0	96.0	37.8	132				
cis-1,2-Dichloroethene	2.12	0.100	2.000	0	106	67.5	127				
Chloroform	2.11	0.100	2.000	0	106	70.3	123				
1,1,1-Trichloroethane (TCA)	2.10	0.100	2.000	0	105	67.9	134				
1,1-Dichloropropene	2.09	0.100	2.000	0	105	72.1	133				
Carbon tetrachloride	1.93	0.100	2.000	0	96.6	64.4	133				
1,2-Dichloroethane (EDC)	2.05	0.100	2.000	0	103	65.8	126				
Benzene	2.13	0.100	2.000	0	106	67.1	132				
Trichloroethene (TCE)	2.11	0.0500	2.000	0	105	71.9	130				
1,2-Dichloropropane	2.04	0.100	2.000	0	102	71.9	131				
Bromodichloromethane	2.02	0.100	2.000	0	101	70	130				
Dibromomethane	2.11	0.100	2.000	0	105	74.2	125				
cis-1,3-Dichloropropene	1.85	0.100	2.000	0	92.6	62.8	135				
Toluene	2.17	0.100	2.000	0	108	73.6	127				
trans-1,3-Dichloropropylene	2.16	0.100	2.000	0	108	58.1	138				
1,1,2-Trichloroethane	2.15	0.100	2.000	0	108	65.4	128				
1,3-Dichloropropane	2.10	0.100	2.000	0	105	71.9	131				
Tetrachloroethene (PCE)	2.24	0.100	2.000	0	112	52.4	140				
Dibromochloromethane	1.96	0.100	2.000	0	98.2	68.7	139				
1,2-Dibromoethane (EDB)	2.15	0.0250	2.000	0	107	71.2	129				

Work Order: 1712084
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19174** SampType: **LCS** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **LCSW** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779070**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	2.20	0.100	2.000	0	110	77.2	122				
1,1,1,2-Tetrachloroethane	2.10	0.100	2.000	0	105	76.2	130				
Ethylbenzene	2.22	0.100	2.000	0	111	78	127				
m,p-Xylene	4.38	0.100	4.000	0	109	77.5	130				
o-Xylene	2.19	0.100	2.000	0	110	77.6	126				
Styrene	2.10	0.100	2.000	0	105	66.8	137				
Isopropylbenzene	2.19	0.100	2.000	0	110	75.9	133				
Bromoform	1.87	0.100	2.000	0	93.4	54.1	146				
1,1,2,2-Tetrachloroethane	2.10	0.100	2.000	0	105	68	134				
n-Propylbenzene	2.09	0.100	2.000	0	104	77.1	133				
Bromobenzene	2.13	0.100	2.000	0	106	71.1	131				
1,3,5-Trimethylbenzene	2.10	0.100	2.000	0	105	76.2	133				
2-Chlorotoluene	2.15	0.100	2.000	0	107	67.1	137				
4-Chlorotoluene	2.03	0.100	2.000	0	101	70.7	132				
tert-Butylbenzene	2.10	0.100	2.000	0	105	71.3	139				
1,2,3-Trichloropropane	2.01	0.100	2.000	0	101	70.8	132				
1,2,4-Trichlorobenzene	1.75	0.200	2.000	0	87.4	61.4	139				
sec-Butylbenzene	2.05	0.100	2.000	0	102	77.4	136				
4-Isopropyltoluene	1.96	0.100	2.000	0	98.2	78.1	131				
1,3-Dichlorobenzene	2.16	0.100	2.000	0	108	73.5	125				
1,4-Dichlorobenzene	2.18	0.100	2.000	0	109	71.4	125				
n-Butylbenzene	2.00	0.100	2.000	0	100	69.8	138				
1,2-Dichlorobenzene	2.14	0.100	2.000	0	107	74.2	123				
1,2-Dibromo-3-chloropropane	1.80	0.100	2.000	0	89.8	53.6	155				
1,2,4-Trimethylbenzene	2.03	0.100	2.000	0	102	72.3	133				
Hexachlorobutadiene	2.27	0.400	2.000	0	114	60.9	141				
Naphthalene	1.83	0.100	2.000	0	91.4	58.2	140				
1,2,3-Trichlorobenzene	1.74	0.400	2.000	0	87.2	61.3	133				
Surr: Dibromofluoromethane	2.61		2.500		104	56.4	141				
Surr: Toluene-d8	2.59		2.500		103	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.73		2.500		109	64.7	128				

Work Order: 1712084
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**LCS-19174**	SampType: **LCS**		Units: **µg/L**		Prep Date: **12/8/2017**		RunNo: **40446**		
Client ID:	**LCSW**	Batch ID: **19174**				Analysis Date: **12/8/2017**		SeqNo: **779070**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**MB-19174**	SampType: **MBLK**		Units: **µg/L**		Prep Date: **12/8/2017**		RunNo: **40446**		
Client ID:	**MBLKW**	Batch ID: **19174**				Analysis Date: **12/8/2017**		SeqNo: **779071**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									Q
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									

Work Order: 1712084
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19174** SampType: **MBLK** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **MBLKW** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779071**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									

Work Order: 1712084
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19174** SampType: **MBLK** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **MBLKW** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779071**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.50		2.500		100	56.4	141				
Surr: Toluene-d8	2.48		2.500		99.3	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.33		2.500		93.3	64.7	128				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1712079-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **BATCH** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	Q
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	0.230	0.100						0.2211	3.97	30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	

Work Order: 1712084
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712079-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **BATCH** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	1.79	0.0500						1.690	5.45	30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	0.113	0.100						0.1145	1.25	30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	

Work Order: 1712084
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712079-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/8/2017** RunNo: **40446**
Client ID: **BATCH** Batch ID: **19174** Analysis Date: **12/8/2017** SeqNo: **779066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.56		2.500		102	61.1	128		0		
Surr: Toluene-d8	2.42		2.500		96.6	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.46		2.500		98.2	64.7	128		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1712084**
Logged by:	**Brianna Barnes**	Date Received:	**12/8/2017 9:56:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Sample		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Internal): 1712084

Date: 12/8/17 Page: 1 of: 1

Special Remarks:

Project Name: WA Industries

Project No: 64001

Client: EPI

Address: 1180 NW Maple St. Issaquah, WA

City, State, Zip:

Telephone: 425-395-0010

Fax:

Location: 825 S. Dakota St. Seattle, WA

Collected by: J. Sherrod

Reports to (PM): Sean Trimble

Email (PM): seant@epi-wa.com

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	S2-EFF-1208A	Canister: / Flow Reg:	Date: 12/8/17 Time: 0850	S	TB	1L	.5 min		Pressure: Date:	Pressure: Time:	Pressure: Time:	VOCs by 8260C	12/8	-
2		Canister: Flow Reg:	Date: Time:						Pressure: Date:	Pressure: Time:	Pressure: Time:			
3		Canister: Flow Reg:	Date: Time:						Pressure: Date:	Pressure: Time:	Pressure: Time:			
4		Canister: Flow Reg:	Date: Time:						Pressure: Date:	Pressure: Time:	Pressure: Time:			
5		Canister: Flow Reg:	Date: Time:						Pressure: Date:	Pressure: Time:	Pressure: Time:			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	12/8/17 / 0956	x Caseyellen	12/8/17 956
Relinquished	Date/Time	Received	Date/Time
x		x	

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1712098

December 14, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 12/11/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/14/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1712098

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1712098-001	S2-EFF-1211	12/11/2017 10:00 AM	12/11/2017 10:40 AM

Case Narrative

WO#: **1712098**
Date: **12/14/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1712098**
Date Reported: **12/14/2017**

Client: Environmental Partners, Inc.
Collection Date: 12/11/2017 10:00:00 AM
Project: WA Industries
Lab ID: 1712098-001
Matrix: Air
Client Sample ID: **S2-EFF-1211**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19173 Analyst: MW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Chloromethane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Vinyl chloride	ND	0.0200		µg/L	1	12/13/2017 2:52:54 PM
Bromomethane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Chloroethane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Methylene chloride	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	12/13/2017 2:52:54 PM
cis-1,2-Dichloroethene	0.226	0.100		µg/L	1	12/13/2017 2:52:54 PM
Chloroform	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Carbon tetrachloride	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Benzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Trichloroethene (TCE)	1.91	0.0500		µg/L	1	12/13/2017 2:52:54 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Bromodichloromethane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Dibromomethane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Toluene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Tetrachloroethene (PCE)	0.156	0.100		µg/L	1	12/13/2017 2:52:54 PM
Dibromochloromethane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/13/2017 2:52:54 PM
Chlorobenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Ethylbenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
m,p-Xylene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
o-Xylene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Styrene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Isopropylbenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Bromoform	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM

Analytical Report

Work Order: **1712098**
Date Reported: **12/14/2017**

Client: Environmental Partners, Inc.
Collection Date: 12/11/2017 10:00:00 AM
Project: WA Industries
Lab ID: 1712098-001
Matrix: Air
Client Sample ID: **S2-EFF-1211**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19173		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
n-Propylbenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Bromobenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
2-Chlorotoluene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
4-Chlorotoluene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
tert-Butylbenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/13/2017 2:52:54 PM
sec-Butylbenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
n-Butylbenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/13/2017 2:52:54 PM
Naphthalene	ND	0.100		µg/L	1	12/13/2017 2:52:54 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/13/2017 2:52:54 PM
Surr: Dibromofluoromethane	102	56.4 - 141		%Rec	1	12/13/2017 2:52:54 PM
Surr: Toluene-d8	87.7	66 - 138		%Rec	1	12/13/2017 2:52:54 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	96.2	64.7 - 128		%Rec	1	12/13/2017 2:52:54 PM

Work Order: 1712098
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19173** SampType: **LCS** Units: **µg/L** Prep Date: **12/13/2017** RunNo: **40472**
Client ID: **LCSW** Batch ID: **19173** Analysis Date: **12/13/2017** SeqNo: **779509**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	2.05	0.100	2.000	0	103	38.8	143				
Chloromethane	1.93	0.100	2.000	0	96.3	42.5	131				
Vinyl chloride	1.96	0.0200	2.000	0	97.8	56.2	130				
Bromomethane	1.90	0.100	2.000	0	95.0	45.4	138				
Trichlorofluoromethane (CFC-11)	1.99	0.100	2.000	0	99.4	64.7	129				
Chloroethane	1.88	0.100	2.000	0	93.9	62.5	123				
1,1-Dichloroethene	2.35	0.100	2.000	0	118	60.7	146				
Methylene chloride	2.20	0.100	2.000	0	110	60.3	135				
trans-1,2-Dichloroethene	2.24	0.100	2.000	0	112	71.3	129				
Methyl tert-butyl ether (MTBE)	2.16	0.100	2.000	0	108	59.3	138				
1,1-Dichloroethane	2.17	0.100	2.000	0	108	71.3	129				
2,2-Dichloropropane	1.78	0.200	2.000	0	89.0	37.8	132				
cis-1,2-Dichloroethene	2.18	0.100	2.000	0	109	67.5	127				
Chloroform	2.19	0.100	2.000	0	109	70.3	123				
1,1,1-Trichloroethane (TCA)	2.14	0.100	2.000	0	107	67.9	134				
1,1-Dichloropropene	2.15	0.100	2.000	0	108	72.1	133				
Carbon tetrachloride	2.03	0.100	2.000	0	102	64.4	133				
1,2-Dichloroethane (EDC)	1.98	0.100	2.000	0	99.1	65.8	126				
Benzene	2.17	0.100	2.000	0	108	67.1	132				
Trichloroethene (TCE)	2.11	0.0500	2.000	0	105	71.9	130				
1,2-Dichloropropane	2.00	0.100	2.000	0	99.9	71.9	131				
Bromodichloromethane	2.05	0.100	2.000	0	103	70	130				
Dibromomethane	2.13	0.100	2.000	0	106	74.2	125				
cis-1,3-Dichloropropene	1.88	0.100	2.000	0	93.9	62.8	135				
Toluene	2.11	0.100	2.000	0	105	73.6	127				
trans-1,3-Dichloropropylene	2.25	0.100	2.000	0	113	58.1	138				
1,1,2-Trichloroethane	2.13	0.100	2.000	0	106	65.4	128				
1,3-Dichloropropane	2.04	0.100	2.000	0	102	71.9	131				
Tetrachloroethene (PCE)	2.23	0.100	2.000	0	111	52.4	140				
Dibromochloromethane	2.14	0.100	2.000	0	107	68.7	139				
1,2-Dibromoethane (EDB)	2.16	0.0250	2.000	0	108	71.2	129				

Work Order: 1712098
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19173** SampType: **LCS** Units: **µg/L** Prep Date: **12/13/2017** RunNo: **40472**
Client ID: **LCSW** Batch ID: **19173** Analysis Date: **12/13/2017** SeqNo: **779509**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	2.30	0.100	2.000	0	115	77.2	122				
1,1,1,2-Tetrachloroethane	2.34	0.100	2.000	0	117	76.2	130				
Ethylbenzene	2.29	0.100	2.000	0	115	78	127				
m,p-Xylene	4.58	0.100	4.000	0	114	77.5	130				
o-Xylene	2.31	0.100	2.000	0	115	77.6	126				
Styrene	2.23	0.100	2.000	0	112	66.8	137				
Isopropylbenzene	2.30	0.100	2.000	0	115	75.9	133				
Bromoform	2.32	0.100	2.000	0	116	54.1	146				
1,1,2,2-Tetrachloroethane	2.30	0.100	2.000	0	115	68	134				
n-Propylbenzene	2.20	0.100	2.000	0	110	77.1	133				
Bromobenzene	2.34	0.100	2.000	0	117	71.1	131				
1,3,5-Trimethylbenzene	2.29	0.100	2.000	0	114	76.2	133				
2-Chlorotoluene	2.33	0.100	2.000	0	116	67.1	137				
4-Chlorotoluene	2.22	0.100	2.000	0	111	70.7	132				
tert-Butylbenzene	2.26	0.100	2.000	0	113	71.3	139				
1,2,3-Trichloropropane	2.17	0.100	2.000	0	108	70.8	132				
1,2,4-Trichlorobenzene	1.96	0.200	2.000	0	97.9	61.4	139				
sec-Butylbenzene	2.22	0.100	2.000	0	111	77.4	136				
4-Isopropyltoluene	2.18	0.100	2.000	0	109	78.1	131				
1,3-Dichlorobenzene	2.28	0.100	2.000	0	114	73.5	125				
1,4-Dichlorobenzene	2.30	0.100	2.000	0	115	71.4	125				
n-Butylbenzene	2.11	0.100	2.000	0	105	69.8	138				
1,2-Dichlorobenzene	2.29	0.100	2.000	0	115	74.2	123				
1,2-Dibromo-3-chloropropane	2.17	0.100	2.000	0	108	53.6	155				
1,2,4-Trimethylbenzene	2.24	0.100	2.000	0	112	72.3	133				
Hexachlorobutadiene	2.34	0.400	2.000	0	117	60.9	141				
Naphthalene	2.05	0.100	2.000	0	103	58.2	140				
1,2,3-Trichlorobenzene	1.94	0.400	2.000	0	97.2	61.3	133				
Surr: Dibromofluoromethane	2.61		2.500		104	56.4	141				
Surr: Toluene-d8	2.40		2.500		96.1	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.74		2.500		110	64.7	128				

Work Order: 1712098
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**LCS-19173**	SampType:	**LCS**		Units:	**µg/L**	Prep Date:	**12/13/2017**	RunNo:	**40472**
Client ID:	**LCSW**	Batch ID:	**19173**				Analysis Date:	**12/13/2017**	SeqNo:	**779509**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**MB-19173**	SampType:	**MBLK**		Units:	**µg/L**	Prep Date:	**12/13/2017**	RunNo:	**40472**
Client ID:	**MBLKW**	Batch ID:	**19173**				Analysis Date:	**12/13/2017**	SeqNo:	**779510**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									

Work Order: 1712098
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19173** SampType: **MBLK** Units: **µg/L** Prep Date: **12/13/2017** RunNo: **40472**
Client ID: **MBLKW** Batch ID: **19173** Analysis Date: **12/13/2017** SeqNo: **779510**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									

Work Order: 1712098
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19173** SampType: **MBLK** Units: **µg/L** Prep Date: **12/13/2017** RunNo: **40472**
Client ID: **MBLKW** Batch ID: **19173** Analysis Date: **12/13/2017** SeqNo: **779510**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.51		2.500		100	56.4	141				
Surr: Toluene-d8	2.19		2.500		87.6	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.34		2.500		93.5	64.7	128				

Sample ID **1712098-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/13/2017** RunNo: **40472**
Client ID: **S2-EFF-1211** Batch ID: **19173** Analysis Date: **12/13/2017** SeqNo: **779505**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	0.225	0.100						0.2260	0.229	30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	

Work Order: 1712098
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712098-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/13/2017** RunNo: **40472**
Client ID: **S2-EFF-1211** Batch ID: **19173** Analysis Date: **12/13/2017** SeqNo: **779505**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	1.81	0.0500						1.905	5.15	30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	0.156	0.100						0.1563	0.0512	30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	

Work Order: 1712098
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712098-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/13/2017** RunNo: **40472**
Client ID: **S2-EFF-1211** Batch ID: **19173** Analysis Date: **12/13/2017** SeqNo: **779505**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.55		2.500		102	61.1	128		0		
Surr: Toluene-d8	2.17		2.500		86.6	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.39		2.500		95.7	64.7	128		0		

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1712098**
Logged by:	**Brianna Barnes**	Date Received:	**12/11/2017 10:40:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Date: 12/11/17 Page: 1 of: 1

Laboratory Project No (Internal): 1712098

Special Remarks:

Project Name: WA INDUSTRIES

Project No: 64001-6

Location: SEATTLE

Collected by: S. TRIMBLE

Reports to (PM): SEAN TRIMBLE

Email (PM): seant@epi-wa.com

Client: EPI

Address: 1180 NW MAPLE

City, State, Zip: ISSAQUAH, WA 98027

Telephone: 425-395-0010

Fax:

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	S2-EFF-1211	~~[illegible]~~	12/11/17 1000	AIR	TB							VOCs BY 8260	12/11/17	
2														
3														
4														
5														

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	12/11/17 1040	x [signature]	12/11/17 1040
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1712163

December 18, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 12/15/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/18/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1712163

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1712163-001	S2-EFF-1214	12/14/2017 6:15 PM	12/15/2017 4:30 PM

Case Narrative

WO#: **1712163**
Date: **12/18/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1712163**
Date Reported: **12/18/2017**

Client: Environmental Partners, Inc. **Collection Date:** 12/14/2017 6:15:00 PM
Project: WA Industries
Lab ID: 1712163-001 **Matrix:** Air
Client Sample ID: **S2-EFF-1214**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19206 Analyst: MW

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Chloromethane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Vinyl chloride	ND	0.0200		µg/L	1	12/16/2017 11:58:39 AM
Bromomethane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Chloroethane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Methylene chloride	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
2,2-Dichloropropane	ND	0.200	Q	µg/L	1	12/16/2017 11:58:39 AM
cis-1,2-Dichloroethene	0.175	0.100		µg/L	1	12/16/2017 11:58:39 AM
Chloroform	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Carbon tetrachloride	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Benzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Trichloroethene (TCE)	1.68	0.0500		µg/L	1	12/16/2017 11:58:39 AM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Bromodichloromethane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Dibromomethane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Toluene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Tetrachloroethene (PCE)	0.149	0.100		µg/L	1	12/16/2017 11:58:39 AM
Dibromochloromethane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/16/2017 11:58:39 AM
Chlorobenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Ethylbenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
m,p-Xylene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
o-Xylene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Styrene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Isopropylbenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Bromoform	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM

Analytical Report

Work Order: **1712163**

Date Reported: **12/18/2017**

Client: Environmental Partners, Inc. **Collection Date:** 12/14/2017 6:15:00 PM

Project: WA Industries

Lab ID: 1712163-001 **Matrix:** Air

Client Sample ID: S2-EFF-1214

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19206		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
n-Propylbenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Bromobenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
2-Chlorotoluene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
4-Chlorotoluene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
tert-Butylbenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/16/2017 11:58:39 AM
sec-Butylbenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
n-Butylbenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/16/2017 11:58:39 AM
Naphthalene	ND	0.100		µg/L	1	12/16/2017 11:58:39 AM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/16/2017 11:58:39 AM
Surr: Dibromofluoromethane	99.3	56.4 - 141		%Rec	1	12/16/2017 11:58:39 AM
Surr: Toluene-d8	94.3	66 - 138		%Rec	1	12/16/2017 11:58:39 AM
Surr: 1-Bromo-4-fluorobenzene-BFB	94.6	64.7 - 128		%Rec	1	12/16/2017 11:58:39 AM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1712163
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19206** SampType: **MBLK** Units: **µg/L** Prep Date: **12/16/2017** RunNo: **40541**
Client ID: **MBLKW** Batch ID: **19206** Analysis Date: **12/16/2017** SeqNo: **780744**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									Q
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									

Work Order: 1712163
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19206** SampType: **MBLK** Units: **µg/L** Prep Date: **12/16/2017** RunNo: **40541**
Client ID: **MBLKW** Batch ID: **19206** Analysis Date: **12/16/2017** SeqNo: **780744**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.39		2.500		95.7	56.4	141				
Surr: Toluene-d8	2.29		2.500		91.7	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.31		2.500		92.4	64.7	128				

Work Order: 1712163
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19206** SampType: **MBLK** Units: **µg/L** Prep Date: **12/16/2017** RunNo: **40541**
Client ID: **MBLKW** Batch ID: **19206** Analysis Date: **12/16/2017** SeqNo: **780744**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-19206** SampType: **LCS** Units: **µg/L** Prep Date: **12/16/2017** RunNo: **40541**
Client ID: **LCSW** Batch ID: **19206** Analysis Date: **12/16/2017** SeqNo: **780743**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.49	0.100	2.000	0	74.7	38.8	143				
Chloromethane	1.65	0.100	2.000	0	82.3	42.5	131				
Vinyl chloride	1.64	0.0200	2.000	0	82.1	56.2	130				
Bromomethane	2.12	0.100	2.000	0	106	45.4	138				
Trichlorofluoromethane (CFC-11)	1.85	0.100	2.000	0	92.3	64.7	129				
Chloroethane	1.81	0.100	2.000	0	90.4	62.5	123				
1,1-Dichloroethene	2.26	0.100	2.000	0	113	60.7	146				
Methylene chloride	2.15	0.100	2.000	0	108	60.3	135				
trans-1,2-Dichloroethene	2.16	0.100	2.000	0	108	71.3	129				
Methyl tert-butyl ether (MTBE)	2.04	0.100	2.000	0	102	59.3	138				
1,1-Dichloroethane	2.12	0.100	2.000	0	106	71.3	129				
2,2-Dichloropropane	1.76	0.200	2.000	0	87.9	37.8	132				
cis-1,2-Dichloroethene	2.12	0.100	2.000	0	106	67.5	127				
Chloroform	2.15	0.100	2.000	0	108	70.3	123				
1,1,1-Trichloroethane (TCA)	2.08	0.100	2.000	0	104	67.9	134				
1,1-Dichloropropene	2.06	0.100	2.000	0	103	72.1	133				
Carbon tetrachloride	1.94	0.100	2.000	0	97.1	64.4	133				
1,2-Dichloroethane (EDC)	1.99	0.100	2.000	0	99.5	65.8	126				
Benzene	2.07	0.100	2.000	0	104	67.1	132				
Trichloroethene (TCE)	2.10	0.0500	2.000	0	105	71.9	130				
1,2-Dichloropropane	1.99	0.100	2.000	0	99.5	71.9	131				
Bromodichloromethane	2.07	0.100	2.000	0	104	70	130				
Dibromomethane	2.10	0.100	2.000	0	105	74.2	125				
cis-1,3-Dichloropropene	1.84	0.100	2.000	0	91.9	62.8	135				

Work Order: 1712163
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19206** SampType: **LCS** Units: **µg/L** Prep Date: **12/16/2017** RunNo: **40541**
Client ID: **LCSW** Batch ID: **19206** Analysis Date: **12/16/2017** SeqNo: **780743**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	2.16	0.100	2.000	0	108	73.6	127				
trans-1,3-Dichloropropylene	2.20	0.100	2.000	0	110	58.1	138				
1,1,2-Trichloroethane	2.14	0.100	2.000	0	107	65.4	128				
1,3-Dichloropropane	2.04	0.100	2.000	0	102	71.9	131				
Tetrachloroethene (PCE)	2.29	0.100	2.000	0	115	52.4	140				
Dibromochloromethane	2.06	0.100	2.000	0	103	68.7	139				
1,2-Dibromoethane (EDB)	2.11	0.0250	2.000	0	106	71.2	129				
Chlorobenzene	2.28	0.100	2.000	0	114	77.2	122				
1,1,1,2-Tetrachloroethane	2.28	0.100	2.000	0	114	76.2	130				
Ethylbenzene	2.29	0.100	2.000	0	114	78	127				
m,p-Xylene	4.57	0.100	4.000	0	114	77.5	130				
o-Xylene	2.27	0.100	2.000	0	113	77.6	126				
Styrene	2.25	0.100	2.000	0	112	66.8	137				
Isopropylbenzene	2.30	0.100	2.000	0	115	75.9	133				
Bromoform	2.13	0.100	2.000	0	107	54.1	146				
1,1,2,2-Tetrachloroethane	2.14	0.100	2.000	0	107	68	134				
n-Propylbenzene	2.22	0.100	2.000	0	111	77.1	133				
Bromobenzene	2.32	0.100	2.000	0	116	71.1	131				
1,3,5-Trimethylbenzene	2.30	0.100	2.000	0	115	76.2	133				
2-Chlorotoluene	2.32	0.100	2.000	0	116	67.1	137				
4-Chlorotoluene	2.23	0.100	2.000	0	111	70.7	132				
tert-Butylbenzene	2.27	0.100	2.000	0	113	71.3	139				
1,2,3-Trichloropropane	2.08	0.100	2.000	0	104	70.8	132				
1,2,4-Trichlorobenzene	1.88	0.200	2.000	0	93.9	61.4	139				
sec-Butylbenzene	2.26	0.100	2.000	0	113	77.4	136				
4-Isopropyltoluene	2.22	0.100	2.000	0	111	78.1	131				
1,3-Dichlorobenzene	2.27	0.100	2.000	0	113	73.5	125				
1,4-Dichlorobenzene	2.28	0.100	2.000	0	114	71.4	125				
n-Butylbenzene	2.08	0.100	2.000	0	104	69.8	138				
1,2-Dichlorobenzene	2.27	0.100	2.000	0	113	74.2	123				
1,2-Dibromo-3-chloropropane	1.91	0.100	2.000	0	95.5	53.6	155				

Work Order: 1712163
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19206** SampType: **LCS** Units: **µg/L** Prep Date: **12/16/2017** RunNo: **40541**
Client ID: **LCSW** Batch ID: **19206** Analysis Date: **12/16/2017** SeqNo: **780743**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	2.24	0.100	2.000	0	112	72.3	133				
Hexachlorobutadiene	2.36	0.400	2.000	0	118	60.9	141				
Naphthalene	1.89	0.100	2.000	0	94.3	58.2	140				
1,2,3-Trichlorobenzene	1.87	0.400	2.000	0	93.5	61.3	133				
Surr: Dibromofluoromethane	2.56		2.500		103	56.4	141				
Surr: Toluene-d8	2.47		2.500		98.8	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.76		2.500		110	64.7	128				

Sample ID **LCSD-19206** SampType: **LCSD** Units: **µg/L** Prep Date: **12/16/2017** RunNo: **40541**
Client ID: **LCSW02** Batch ID: **19206** Analysis Date: **12/16/2017** SeqNo: **780742**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.38	0.100	2.000	0	69.2	38.8	143	1.495	7.67	20	
Chloromethane	1.63	0.100	2.000	0	81.6	42.5	131	1.645	0.838	20	
Vinyl chloride	1.68	0.0200	2.000	0	84.0	56.2	130	1.642	2.27	20	
Bromomethane	2.05	0.100	2.000	0	103	45.4	138	2.118	3.20	20	
Trichlorofluoromethane (CFC-11)	1.91	0.100	2.000	0	95.6	64.7	129	1.847	3.42	20	
Chloroethane	1.82	0.100	2.000	0	90.8	62.5	123	1.809	0.410	20	
1,1-Dichloroethene	2.32	0.100	2.000	0	116	60.7	146	2.255	2.97	20	
Methylene chloride	2.19	0.100	2.000	0	109	60.3	135	2.154	1.51	20	
trans-1,2-Dichloroethene	2.22	0.100	2.000	0	111	71.3	129	2.157	3.06	20	
Methyl tert-butyl ether (MTBE)	2.11	0.100	2.000	0	106	59.3	138	2.039	3.47	20	
1,1-Dichloroethane	2.16	0.100	2.000	0	108	71.3	129	2.121	1.67	20	
2,2-Dichloropropane	1.78	0.200	2.000	0	89.1	37.8	132	1.758	1.34	20	
cis-1,2-Dichloroethene	2.21	0.100	2.000	0	111	67.5	127	2.124	3.99	20	
Chloroform	2.20	0.100	2.000	0	110	70.3	123	2.153	1.93	20	
1,1,1-Trichloroethane (TCA)	2.15	0.100	2.000	0	107	67.9	134	2.079	3.21	20	
1,1-Dichloropropene	2.10	0.100	2.000	0	105	72.1	133	2.056	2.21	20	
Carbon tetrachloride	1.97	0.100	2.000	0	98.7	64.4	133	1.941	1.65	20	
1,2-Dichloroethane (EDC)	2.06	0.100	2.000	0	103	65.8	126	1.991	3.22	20	

Work Order: 1712163
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCSD-19206** SampType: **LCSD** Units: **µg/L** Prep Date: **12/16/2017** RunNo: **40541**
Client ID: **LCSW02** Batch ID: **19206** Analysis Date: **12/16/2017** SeqNo: **780742**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	2.09	0.100	2.000	0	104	67.1	132	2.070	0.750	20	
Trichloroethene (TCE)	2.20	0.0500	2.000	0	110	71.9	130	2.100	4.77	20	
1,2-Dichloropropane	2.04	0.100	2.000	0	102	71.9	131	1.990	2.40	20	
Bromodichloromethane	2.07	0.100	2.000	0	104	70	130	2.074	0.0678	20	
Dibromomethane	2.10	0.100	2.000	0	105	74.2	125	2.097	0.0164	20	
cis-1,3-Dichloropropene	1.90	0.100	2.000	0	95.2	62.8	135	1.837	3.60	20	
Toluene	2.22	0.100	2.000	0	111	73.6	127	2.156	2.82	20	
trans-1,3-Dichloropropylene	2.23	0.100	2.000	0	112	58.1	138	2.199	1.61	20	
1,1,2-Trichloroethane	2.15	0.100	2.000	0	107	65.4	128	2.137	0.413	20	
1,3-Dichloropropane	2.07	0.100	2.000	0	104	71.9	131	2.042	1.40	20	
Tetrachloroethene (PCE)	2.33	0.100	2.000	0	117	52.4	140	2.294	1.61	20	
Dibromochloromethane	2.05	0.100	2.000	0	103	68.7	139	2.062	0.368	20	
1,2-Dibromoethane (EDB)	2.15	0.0250	2.000	0	108	71.2	129	2.112	1.82	20	
Chlorobenzene	2.33	0.100	2.000	0	116	77.2	122	2.284	1.86	20	
1,1,1,2-Tetrachloroethane	2.32	0.100	2.000	0	116	76.2	130	2.284	1.66	20	
Ethylbenzene	2.33	0.100	2.000	0	116	78	127	2.286	1.76	20	
m,p-Xylene	4.68	0.100	4.000	0	117	77.5	130	4.575	2.21	20	
o-Xylene	2.33	0.100	2.000	0	116	77.6	126	2.266	2.57	20	
Styrene	2.28	0.100	2.000	0	114	66.8	137	2.249	1.59	20	
Isopropylbenzene	2.34	0.100	2.000	0	117	75.9	133	2.303	1.77	20	
Bromoform	2.14	0.100	2.000	0	107	54.1	146	2.132	0.433	20	
1,1,2,2-Tetrachloroethane	2.14	0.100	2.000	0	107	68	134	2.136	0.0188	20	
n-Propylbenzene	2.27	0.100	2.000	0	114	77.1	133	2.224	2.13	20	
Bromobenzene	2.38	0.100	2.000	0	119	71.1	131	2.321	2.67	20	
1,3,5-Trimethylbenzene	2.35	0.100	2.000	0	117	76.2	133	2.303	1.91	20	
2-Chlorotoluene	2.34	0.100	2.000	0	117	67.1	137	2.321	0.923	20	
4-Chlorotoluene	2.26	0.100	2.000	0	113	70.7	132	2.228	1.26	20	
tert-Butylbenzene	2.30	0.100	2.000	0	115	71.3	139	2.269	1.18	20	
1,2,3-Trichloropropane	2.10	0.100	2.000	0	105	70.8	132	2.078	0.983	20	
1,2,4-Trichlorobenzene	1.99	0.200	2.000	0	99.7	61.4	139	1.878	6.01	20	
sec-Butylbenzene	2.30	0.100	2.000	0	115	77.4	136	2.258	1.70	20	

Work Order: 1712163
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCSD-19206** SampType: **LCSD** Units: **µg/L** Prep Date: **12/16/2017** RunNo: **40541**
Client ID: **LCSW02** Batch ID: **19206** Analysis Date: **12/16/2017** SeqNo: **780742**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	2.28	0.100	2.000	0	114	78.1	131	2.224	2.40	20	
1,3-Dichlorobenzene	2.32	0.100	2.000	0	116	73.5	125	2.266	2.38	20	
1,4-Dichlorobenzene	2.34	0.100	2.000	0	117	71.4	125	2.282	2.38	20	
n-Butylbenzene	2.18	0.100	2.000	0	109	69.8	138	2.076	4.81	20	
1,2-Dichlorobenzene	2.33	0.100	2.000	0	117	74.2	123	2.270	2.78	20	
1,2-Dibromo-3-chloropropane	1.98	0.100	2.000	0	99.1	53.6	155	1.911	3.63	20	
1,2,4-Trimethylbenzene	2.30	0.100	2.000	0	115	72.3	133	2.244	2.36	20	
Hexachlorobutadiene	2.41	0.400	2.000	0	121	60.9	141	2.362	2.07	20	
Naphthalene	2.06	0.100	2.000	0	103	58.2	140	1.886	8.97	20	
1,2,3-Trichlorobenzene	1.97	0.400	2.000	0	98.6	61.3	133	1.870	5.33	20	
Surr: Dibromofluoromethane	2.57		2.500		103	56.4	141		0		
Surr: Toluene-d8	2.48		2.500		99.1	66	138		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.76		2.500		110	64.7	128		0		

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1712163**
Logged by:	**Brianna Barnes**	Date Received:	**12/15/2017 4:30:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes	☑	No ☐	Not Present	☐
2.	How was the sample delivered?	UPS				

Log In

3.	Coolers are present?	Yes	☐	No ☑	NA	☐
		Air Sample				
4.	Shipping container/cooler in good condition?	Yes	☑	No ☐		
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No ☑	Not Required	☐
6.	Was an attempt made to cool the samples?	Yes	☐	No ☐	NA	☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes	☐	No ☐	NA	☑
8.	Sample(s) in proper container(s)?	Yes	☑	No ☐		
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No ☐		
10.	Are samples properly preserved?	Yes	☑	No ☐		
11.	Was preservative added to bottles?	Yes	☐	No ☑	NA	☐
12.	Is there headspace in the VOA vials?	Yes	☐	No ☐	NA	☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No ☐		
14.	Does paperwork match bottle labels?	Yes	☑	No ☐		
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No ☐		
16.	Is it clear what analyses were requested?	Yes	☑	No ☐		
17.	Were all holding times able to be met?	Yes	☑	No ☐		

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes	☐	No ☐	NA	☑

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 12/14/17 Page: 1 of: 1

Laboratory Project No (Internal): 1712163

Special Remarks:

Project Name: WA INDUSTRIES

Project No: 6A001.6

Location: SEATTLE, WA

Collected by: S. TRIMBLE

Reports to (PM): S. TRIMBLE

Email (PM): seant@epi-wa.com

Client: EPI

Address: 1180 NW MAPLE #310

City, State, Zip: ISSAQUAH, WA 98027

Telephone: 425-395-0010

Fax:

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	S2-EFF-1214	Canister / Flow Reg	12/14/17 1815	AIR	TB				Pressure / Date	Pressure / Time	Pressure / Time	VOCs BY 8260		
2		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
3		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	12/15/17 11:30 am	x	
x [signature]	12/15/17 11:30 am	x Casey Keep	12/15/17 1630

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1712184

December 26, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 12/18/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/26/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1712184

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1712184-001	S2-EFF-1218A	12/18/2017 8:52 AM	12/18/2017 3:10 PM

Case Narrative

WO#: **1712184**
Date: **12/26/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 12/18/2017 8:52:00 AM
Project: WA Industries
Lab ID: 1712184-001 **Matrix:** Air
Client Sample ID: **S2-EFF-1218A**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19254 Analyst: NG

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100	Q	µg/L	1	12/20/2017 12:43:34 PM
Chloromethane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Vinyl chloride	ND	0.0200		µg/L	1	12/20/2017 12:43:34 PM
Bromomethane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Chloroethane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Methylene chloride	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
2,2-Dichloropropane	ND	0.200	Q	µg/L	1	12/20/2017 12:43:34 PM
cis-1,2-Dichloroethene	0.185	0.100		µg/L	1	12/20/2017 12:43:34 PM
Chloroform	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,1,1-Trichloroethane (TCA)	ND	0.100	Q	µg/L	1	12/20/2017 12:43:34 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Carbon tetrachloride	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Benzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Trichloroethene (TCE)	2.12	0.0500		µg/L	1	12/20/2017 12:43:34 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Bromodichloromethane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Dibromomethane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Toluene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Tetrachloroethene (PCE)	0.184	0.100		µg/L	1	12/20/2017 12:43:34 PM
Dibromochloromethane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/20/2017 12:43:34 PM
Chlorobenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Ethylbenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
m,p-Xylene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
o-Xylene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Styrene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Isopropylbenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Bromoform	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM

Analytical Report

Work Order: **1712184**

Date Reported: **12/26/2017**

Client: Environmental Partners, Inc. **Collection Date:** 12/18/2017 8:52:00 AM

Project: WA Industries

Lab ID: 1712184-001 **Matrix:** Air

Client Sample ID: S2-EFF-1218A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19254		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
n-Propylbenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Bromobenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
2-Chlorotoluene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
4-Chlorotoluene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
tert-Butylbenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/20/2017 12:43:34 PM
sec-Butylbenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
n-Butylbenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/20/2017 12:43:34 PM
Naphthalene	ND	0.100		µg/L	1	12/20/2017 12:43:34 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/20/2017 12:43:34 PM
Surr: Dibromofluoromethane	114	56.4 - 141		%Rec	1	12/20/2017 12:43:34 PM
Surr: Toluene-d8	108	66 - 138		%Rec	1	12/20/2017 12:43:34 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	97.7	64.7 - 128		%Rec	1	12/20/2017 12:43:34 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1712184
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712184-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/20/2017** RunNo: **40679**
Client ID: **S2-EFF-1218A** Batch ID: **19254** Analysis Date: **12/20/2017** SeqNo: **783569**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	Q
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	Q
cis-1,2-Dichloroethene	0.137	0.100						0.1850	29.6	30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	Q
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	1.57	0.0500						2.121	30.0	30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	0.134	0.100						0.1835	31.3	30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	

Work Order: 1712184
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712184-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/20/2017** RunNo: **40679**
Client ID: **S2-EFF-1218A** Batch ID: **19254** Analysis Date: **12/20/2017** SeqNo: **783569**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.48		2.500		99.4	61.1	128		0		
Surr: Toluene-d8	2.51		2.500		100	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.31		2.500		92.5	64.7	128		0		

Work Order: 1712184
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712184-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/20/2017** RunNo: **40679**
Client ID: **S2-EFF-1218A** Batch ID: **19254** Analysis Date: **12/20/2017** SeqNo: **783569**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-19254** SampType: **LCS** Units: **µg/L** Prep Date: **12/20/2017** RunNo: **40679**
Client ID: **LCSW** Batch ID: **19254** Analysis Date: **12/20/2017** SeqNo: **783577**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.30	0.100	2.000	0	65.2	38.8	143				
Chloromethane	1.74	0.100	2.000	0	86.8	42.5	131				
Vinyl chloride	1.74	0.0200	2.000	0	86.9	56.2	130				
Bromomethane	1.90	0.100	2.000	0	94.8	45.4	138				
Trichlorofluoromethane (CFC-11)	1.83	0.100	2.000	0	91.7	64.7	129				
Chloroethane	1.88	0.100	2.000	0	93.9	62.5	123				
1,1-Dichloroethene	1.90	0.100	2.000	0	95.0	60.7	146				
Methylene chloride	1.99	0.100	2.000	0	99.4	60.3	135				
trans-1,2-Dichloroethene	1.90	0.100	2.000	0	95.0	71.3	129				
Methyl tert-butyl ether (MTBE)	2.05	0.100	2.000	0	102	59.3	138				
1,1-Dichloroethane	1.98	0.100	2.000	0	98.9	71.3	129				
2,2-Dichloropropane	1.94	0.200	2.000	0	97.0	37.8	132				
cis-1,2-Dichloroethene	2.00	0.100	2.000	0	100	67.5	127				
Chloroform	1.99	0.100	2.000	0	99.7	70.3	123				
1,1,1-Trichloroethane (TCA)	1.96	0.100	2.000	0	97.8	67.9	134				
1,1-Dichloropropene	1.98	0.100	2.000	0	98.9	72.1	133				
Carbon tetrachloride	1.97	0.100	2.000	0	98.6	64.4	133				
1,2-Dichloroethane (EDC)	2.03	0.100	2.000	0	101	65.8	126				
Benzene	1.99	0.100	2.000	0	99.6	67.1	132				
Trichloroethene (TCE)	2.00	0.0500	2.000	0	99.8	71.9	130				
1,2-Dichloropropane	2.02	0.100	2.000	0	101	71.9	131				
Bromodichloromethane	2.01	0.100	2.000	0	100	70	130				
Dibromomethane	2.03	0.100	2.000	0	102	74.2	125				
cis-1,3-Dichloropropene	1.98	0.100	2.000	0	98.9	62.8	135				

Work Order: 1712184
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19254** SampType: **LCS** Units: **µg/L** Prep Date: **12/20/2017** RunNo: **40679**
Client ID: **LCSW** Batch ID: **19254** Analysis Date: **12/20/2017** SeqNo: **783577**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	2.00	0.100	2.000	0	100	73.6	127				
trans-1,3-Dichloropropylene	2.00	0.100	2.000	0	100	58.1	138				
1,1,2-Trichloroethane	2.02	0.100	2.000	0	101	65.4	128				
1,3-Dichloropropane	2.01	0.100	2.000	0	101	71.9	131				
Tetrachloroethene (PCE)	1.97	0.100	2.000	0	98.3	52.4	140				
Dibromochloromethane	1.98	0.100	2.000	0	98.9	68.7	139				
1,2-Dibromoethane (EDB)	2.05	0.0250	2.000	0	102	71.2	129				
Chlorobenzene	2.06	0.100	2.000	0	103	77.2	122				
1,1,1,2-Tetrachloroethane	2.05	0.100	2.000	0	103	76.2	130				
Ethylbenzene	2.05	0.100	2.000	0	102	78	127				
m,p-Xylene	4.25	0.100	4.000	0	106	77.5	130				
o-Xylene	2.14	0.100	2.000	0	107	77.6	126				
Styrene	2.14	0.100	2.000	0	107	66.8	137				
Isopropylbenzene	2.18	0.100	2.000	0	109	75.9	133				
Bromoform	2.22	0.100	2.000	0	111	54.1	146				
1,1,2,2-Tetrachloroethane	2.17	0.100	2.000	0	108	68	134				
n-Propylbenzene	2.18	0.100	2.000	0	109	77.1	133				
Bromobenzene	2.15	0.100	2.000	0	108	71.1	131				
1,3,5-Trimethylbenzene	2.07	0.100	2.000	0	104	76.2	133				
2-Chlorotoluene	2.15	0.100	2.000	0	107	67.1	137				
4-Chlorotoluene	2.16	0.100	2.000	0	108	70.7	132				
tert-Butylbenzene	2.16	0.100	2.000	0	108	71.3	139				
1,2,3-Trichloropropane	2.19	0.100	2.000	0	110	70.8	132				
1,2,4-Trichlorobenzene	1.94	0.200	2.000	0	96.8	61.4	139				
sec-Butylbenzene	2.15	0.100	2.000	0	108	77.4	136				
4-Isopropyltoluene	2.10	0.100	2.000	0	105	78.1	131				
1,3-Dichlorobenzene	1.98	0.100	2.000	0	99.0	73.5	125				
1,4-Dichlorobenzene	1.98	0.100	2.000	0	98.8	71.4	125				
n-Butylbenzene	2.01	0.100	2.000	0	100	69.8	138				
1,2-Dichlorobenzene	2.00	0.100	2.000	0	99.9	74.2	123				
1,2-Dibromo-3-chloropropane	2.10	0.100	2.000	0	105	53.6	155				

Work Order: 1712184
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19254** SampType: **LCS** Units: **µg/L** Prep Date: **12/20/2017** RunNo: **40679**
Client ID: **LCSW** Batch ID: **19254** Analysis Date: **12/20/2017** SeqNo: **783577**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	2.10	0.100	2.000	0	105	72.3	133				
Hexachlorobutadiene	2.00	0.400	2.000	0	99.8	60.9	141				
Naphthalene	1.96	0.100	2.000	0	98.2	58.2	140				
1,2,3-Trichlorobenzene	1.92	0.400	2.000	0	95.9	61.3	133				
Surr: Dibromofluoromethane	2.52		2.500		101	56.4	141				
Surr: Toluene-d8	2.52		2.500		101	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.89		2.500		115	64.7	128				

Sample ID **MB-19254** SampType: **MBLK** Units: **µg/L** Prep Date: **12/20/2017** RunNo: **40679**
Client ID: **MBLKW** Batch ID: **19254** Analysis Date: **12/20/2017** SeqNo: **783578**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									Q
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									Q
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									Q
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									

Work Order: 1712184
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19254** SampType: **MBLK** Units: **µg/L** Prep Date: **12/20/2017** RunNo: **40679**
Client ID: **MBLKW** Batch ID: **19254** Analysis Date: **12/20/2017** SeqNo: **783578**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									

Work Order: 1712184
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19254** SampType: **MBLK** Units: **µg/L** Prep Date: **12/20/2017** RunNo: **40679**
Client ID: **MBLKW** Batch ID: **19254** Analysis Date: **12/20/2017** SeqNo: **783578**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.47		2.500		98.8	56.4	141				
Surr: Toluene-d8	2.48		2.500		99.3	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.58		2.500		103	64.7	128				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1712184**
Logged by:	**Brianna Barnes**	Date Received:	**12/18/2017 3:10:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Sample		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 12/18/17 Page: 1 of: 1

Laboratory Project No (Internal): 1712184

Special Remarks:

Project Name: WA Industries

Project No: 64001

Location: Seattle, WA

Collected by: J. Sherrod

Reports to (PM): Sean Trimble

Email (PM): sean@epi-wa.com

Client: Environmental Partners Inc.

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	S2-EFF-121817A	Canister / Flow Reg	Date 12/18/17 Time 0852	S	TB	1L	.5 min	~7	Pressure / Date / Time	Pressure / Time	Pressure / Time	VOCs by 8260C		
2		Canister / Flow Reg	Date / Time						Pressure / Date / Time	Pressure / Time	Pressure / Time			
3		Canister / Flow Reg	Date / Time						Pressure / Date / Time	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time						Pressure / Date / Time	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time						Pressure / Date / Time	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	12/18/17 / 1510	x	12/18/17 15:10
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- [ ] Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1712252

December 27, 2017

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 12/21/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/27/2017*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1712252

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1712252-001	S2-EFF-122117	12/21/2017 1:40 PM	12/21/2017 1:55 PM

Case Narrative

WO#: **1712252**
Date: **12/27/2017**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 12/21/2017 1:40:00 PM
Project: WA Industries
Lab ID: 1712252-001 **Matrix:** Air
Client Sample ID: **S2-EFF-122117**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19304		Analyst: MW
Dichlorodifluoromethane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Chloromethane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Vinyl chloride	ND	0.0200		µg/L	1	12/22/2017 10:06:34 AM
Bromomethane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Chloroethane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Methylene chloride	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
2,2-Dichloropropane	ND	0.200		µg/L	1	12/22/2017 10:06:34 AM
cis-1,2-Dichloroethene	0.123	0.100		µg/L	1	12/22/2017 10:06:34 AM
Chloroform	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Carbon tetrachloride	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Benzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Trichloroethene (TCE)	1.37	0.0500		µg/L	1	12/22/2017 10:06:34 AM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Bromodichloromethane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Dibromomethane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Toluene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Tetrachloroethene (PCE)	0.218	0.100		µg/L	1	12/22/2017 10:06:34 AM
Dibromochloromethane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/22/2017 10:06:34 AM
Chlorobenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Ethylbenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
m,p-Xylene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
o-Xylene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Styrene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Isopropylbenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Bromoform	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM

Analytical Report

Work Order: **1712252**

Date Reported: **12/27/2017**

Client: Environmental Partners, Inc. **Collection Date:** 12/21/2017 1:40:00 PM

Project: WA Industries

Lab ID: 1712252-001 **Matrix:** Air

Client Sample ID: **S2-EFF-122117**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19304		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
n-Propylbenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Bromobenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
2-Chlorotoluene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
4-Chlorotoluene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
tert-Butylbenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/22/2017 10:06:34 AM
sec-Butylbenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
n-Butylbenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/22/2017 10:06:34 AM
Naphthalene	ND	0.100		µg/L	1	12/22/2017 10:06:34 AM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/22/2017 10:06:34 AM
Surr: Dibromofluoromethane	100	56.4 - 141		%Rec	1	12/22/2017 10:06:34 AM
Surr: Toluene-d8	95.2	66 - 138		%Rec	1	12/22/2017 10:06:34 AM
Surr: 1-Bromo-4-fluorobenzene-BFB	91.6	64.7 - 128		%Rec	1	12/22/2017 10:06:34 AM

Work Order: 1712252
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712233-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/22/2017** RunNo: **40665**
Client ID: **BATCH** Batch ID: **19304** Analysis Date: **12/22/2017** SeqNo: **783364**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.0500						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	

Work Order: 1712252
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712233-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/22/2017** RunNo: **40665**
Client ID: **BATCH** Batch ID: **19304** Analysis Date: **12/22/2017** SeqNo: **783364**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.48		2.500		99.2	61.1	128		0		
Surr: Toluene-d8	2.39		2.500		95.7	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.32		2.500		93.0	64.7	128		0		

Work Order: 1712252
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712233-001AREP**	SampType: **REP**			Units: **µg/L**		Prep Date: **12/22/2017**		RunNo: **40665**			
Client ID: **BATCH**	Batch ID: **19304**					Analysis Date: **12/22/2017**		SeqNo: **783364**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **MB-19304**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **12/22/2017**		RunNo: **40665**			
Client ID: **MBLKW**	Batch ID: **19304**					Analysis Date: **12/22/2017**		SeqNo: **783371**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									

Work Order: 1712252
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19304** SampType: **MBLK** Units: **µg/L** Prep Date: **12/22/2017** RunNo: **40665**
Client ID: **MBLKW** Batch ID: **19304** Analysis Date: **12/22/2017** SeqNo: **783371**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									

Work Order: 1712252
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19304** SampType: **MBLK** Units: **µg/L** Prep Date: **12/22/2017** RunNo: **40665**
Client ID: **MBLKW** Batch ID: **19304** Analysis Date: **12/22/2017** SeqNo: **783371**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.45		2.500		97.9	56.4	141				
Surr: Toluene-d8	2.47		2.500		98.7	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.25		2.500		89.9	64.7	128				

Sample ID **LCS-19304** SampType: **LCS** Units: **µg/L** Prep Date: **12/22/2017** RunNo: **40665**
Client ID: **LCSW** Batch ID: **19304** Analysis Date: **12/22/2017** SeqNo: **783370**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	3.05	0.100	2.000	0	153	38.8	143				S
Chloromethane	2.18	0.100	2.000	0	109	42.5	131				
Vinyl chloride	2.22	0.0200	2.000	0	111	56.2	130				
Bromomethane	2.28	0.100	2.000	0	114	45.4	138				
Trichlorofluoromethane (CFC-11)	2.11	0.100	2.000	0	105	64.7	129				
Chloroethane	2.04	0.100	2.000	0	102	62.5	123				
1,1-Dichloroethene	2.00	0.100	2.000	0	100	60.7	146				
Methylene chloride	1.96	0.100	2.000	0	98.2	60.3	135				
trans-1,2-Dichloroethene	1.91	0.100	2.000	0	95.7	71.3	129				
Methyl tert-butyl ether (MTBE)	1.98	0.100	2.000	0	98.9	59.3	138				
1,1-Dichloroethane	1.92	0.100	2.000	0	96.1	71.3	129				
2,2-Dichloropropane	2.17	0.200	2.000	0	108	37.8	132				
cis-1,2-Dichloroethene	1.92	0.100	2.000	0	96.1	67.5	127				
Chloroform	1.92	0.100	2.000	0	96.2	70.3	123				
1,1,1-Trichloroethane (TCA)	1.88	0.100	2.000	0	94.0	67.9	134				
1,1-Dichloropropene	1.86	0.100	2.000	0	92.9	72.1	133				
Carbon tetrachloride	2.14	0.100	2.000	0	107	64.4	133				
1,2-Dichloroethane (EDC)	1.90	0.100	2.000	0	94.8	65.8	126				
Benzene	1.86	0.100	2.000	0	92.8	67.1	132				

Work Order: 1712252
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19304** SampType: **LCS** Units: **µg/L** Prep Date: **12/22/2017** RunNo: **40665**
Client ID: **LCSW** Batch ID: **19304** Analysis Date: **12/22/2017** SeqNo: **783370**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	2.01	0.0500	2.000	0	101	71.9	130				
1,2-Dichloropropane	1.85	0.100	2.000	0	92.4	71.9	131				
Bromodichloromethane	1.92	0.100	2.000	0	96.2	70	130				
Dibromomethane	2.01	0.100	2.000	0	101	74.2	125				
cis-1,3-Dichloropropene	1.88	0.100	2.000	0	93.8	62.8	135				
Toluene	1.99	0.100	2.000	0	99.5	73.6	127				
trans-1,3-Dichloropropylene	2.21	0.100	2.000	0	110	58.1	138				
1,1,2-Trichloroethane	2.02	0.100	2.000	0	101	65.4	128				
1,3-Dichloropropane	1.99	0.100	2.000	0	99.7	71.9	131				
Tetrachloroethene (PCE)	2.01	0.100	2.000	0	101	52.4	140				
Dibromochloromethane	1.97	0.100	2.000	0	98.7	68.7	139				
1,2-Dibromoethane (EDB)	2.03	0.0250	2.000	0	102	71.2	129				
Chlorobenzene	1.95	0.100	2.000	0	97.5	77.2	122				
1,1,1,2-Tetrachloroethane	1.92	0.100	2.000	0	96.2	76.2	130				
Ethylbenzene	1.97	0.100	2.000	0	98.3	78	127				
m,p-Xylene	3.99	0.100	4.000	0	99.7	77.5	130				
o-Xylene	2.01	0.100	2.000	0	101	77.6	126				
Styrene	1.90	0.100	2.000	0	95.2	66.8	137				
Isopropylbenzene	1.93	0.100	2.000	0	96.4	75.9	133				
Bromoform	1.95	0.100	2.000	0	97.4	54.1	146				
1,1,2,2-Tetrachloroethane	1.77	0.100	2.000	0	88.3	68	134				
n-Propylbenzene	1.89	0.100	2.000	0	94.6	77.1	133				
Bromobenzene	1.97	0.100	2.000	0	98.4	71.1	131				
1,3,5-Trimethylbenzene	1.92	0.100	2.000	0	95.9	76.2	133				
2-Chlorotoluene	1.93	0.100	2.000	0	96.5	67.1	137				
4-Chlorotoluene	1.88	0.100	2.000	0	93.8	70.7	132				
tert-Butylbenzene	1.88	0.100	2.000	0	93.8	71.3	139				
1,2,3-Trichloropropane	1.96	0.100	2.000	0	97.8	70.8	132				
1,2,4-Trichlorobenzene	1.62	0.200	2.000	0	81.1	61.4	139				
sec-Butylbenzene	1.88	0.100	2.000	0	94.1	77.4	136				
4-Isopropyltoluene	1.84	0.100	2.000	0	92.0	78.1	131				

Work Order: 1712252
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19304** SampType: **LCS** Units: **µg/L** Prep Date: **12/22/2017** RunNo: **40665**
Client ID: **LCSW** Batch ID: **19304** Analysis Date: **12/22/2017** SeqNo: **783370**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	1.96	0.100	2.000	0	98.0	73.5	125				
1,4-Dichlorobenzene	1.97	0.100	2.000	0	98.3	71.4	125				
n-Butylbenzene	1.82	0.100	2.000	0	91.0	69.8	138				
1,2-Dichlorobenzene	1.97	0.100	2.000	0	98.4	74.2	123				
1,2-Dibromo-3-chloropropane	1.88	0.100	2.000	0	94.2	53.6	155				
1,2,4-Trimethylbenzene	1.87	0.100	2.000	0	93.3	72.3	133				
Hexachlorobutadiene	1.95	0.400	2.000	0	97.6	60.9	141				
Naphthalene	1.66	0.100	2.000	0	82.9	58.2	140				
1,2,3-Trichlorobenzene	1.61	0.400	2.000	0	80.5	61.3	133				
Surr: Dibromofluoromethane	2.45		2.500		98.0	56.4	141				
Surr: Toluene-d8	2.58		2.500		103	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.64		2.500		106	64.7	128				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1712252**
Logged by:	**Clare Griggs**	Date Received:	**12/21/2017 1:55:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Sample		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Laboratory Project No (Internal): 1712252

Date: 12/21/17 Page: 1 of: 1

Special Remarks: Provide EDD table

Project Name: WA Industries

Project No: 64001

Location: Seattle, WA

Collected by: J. Sherod

Reports to (PM): S. Trimble

Client: Environmental Partners Inc.

Address: 180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

Email (PM): seattlep.i-wa.com

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	S2-EFF-1221A	Canister / Flow Reg	12/21/17 Date / 1340 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260C		
2		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
3		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	12/21/17 / 1355	x	12/21/17 1355
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1712330

January 03, 2018

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 12/28/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *01/03/2018*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1712330

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1712330-001	AIR-EFF	12/28/2017 3:10 PM	12/28/2017 4:10 PM

Case Narrative

WO#: **1712330**
Date: **1/3/2018**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1712330**
Date Reported: **1/3/2018**

Client: Environmental Partners, Inc.
Collection Date: 12/28/2017 3:10:00 PM
Project: WA Industries
Lab ID: 1712330-001
Matrix: Air
Client Sample ID: **AIR-EFF**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19344 Analyst: NG

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Chloromethane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Vinyl chloride	ND	0.0200		µg/L	1	12/29/2017 1:44:38 PM
Bromomethane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Chloroethane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Methylene chloride	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	12/29/2017 1:44:38 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Chloroform	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Carbon tetrachloride	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Benzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Trichloroethene (TCE)	1.16	0.0500		µg/L	1	12/29/2017 1:44:38 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Bromodichloromethane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Dibromomethane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Toluene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Tetrachloroethene (PCE)	0.111	0.100		µg/L	1	12/29/2017 1:44:38 PM
Dibromochloromethane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/29/2017 1:44:38 PM
Chlorobenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Ethylbenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
m,p-Xylene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
o-Xylene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Styrene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Isopropylbenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Bromoform	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM

Analytical Report

Work Order: **1712330**
Date Reported: **1/3/2018**

Client: Environmental Partners, Inc.
Collection Date: 12/28/2017 3:10:00 PM
Project: WA Industries
Lab ID: 1712330-001
Matrix: Air
Client Sample ID: **AIR-EFF**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19344		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
n-Propylbenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Bromobenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
2-Chlorotoluene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
4-Chlorotoluene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
tert-Butylbenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/29/2017 1:44:38 PM
sec-Butylbenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
n-Butylbenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/29/2017 1:44:38 PM
Naphthalene	ND	0.100		µg/L	1	12/29/2017 1:44:38 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/29/2017 1:44:38 PM
Surr: Dibromofluoromethane	100	56.4 - 141		%Rec	1	12/29/2017 1:44:38 PM
Surr: Toluene-d8	99.3	66 - 138		%Rec	1	12/29/2017 1:44:38 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	109	64.7 - 128		%Rec	1	12/29/2017 1:44:38 PM

Work Order: 1712330
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712306-004AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **BATCH** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785991**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.0500						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	

Work Order: 1712330
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712306-004AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **BATCH** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785991**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.49		2.500		99.7	61.1	128		0		
Surr: Toluene-d8	2.51		2.500		100	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.69		2.500		108	64.7	128		0		

Work Order: 1712330
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712306-004AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **BATCH** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785991**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **LCS-19344** SampType: **LCS** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **LCSW** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785997**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.88	0.100	2.000	0	94.1	38.8	143				
Chloromethane	1.95	0.100	2.000	0	97.4	42.5	131				
Vinyl chloride	2.03	0.0200	2.000	0	102	56.2	130				
Bromomethane	2.11	0.100	2.000	0	106	45.4	138				
Trichlorofluoromethane (CFC-11)	2.08	0.100	2.000	0	104	64.7	129				
Chloroethane	2.12	0.100	2.000	0	106	62.5	123				
1,1-Dichloroethene	2.04	0.100	2.000	0	102	60.7	146				
Methylene chloride	2.02	0.100	2.000	0	101	60.3	135				
trans-1,2-Dichloroethene	2.00	0.100	2.000	0	100	71.3	129				
Methyl tert-butyl ether (MTBE)	1.98	0.100	2.000	0	99.2	59.3	138				
1,1-Dichloroethane	2.09	0.100	2.000	0	105	71.3	129				
2,2-Dichloropropane	1.88	0.200	2.000	0	94.2	37.8	132				
cis-1,2-Dichloroethene	2.02	0.100	2.000	0	101	67.5	127				
Chloroform	2.07	0.100	2.000	0	103	70.3	123				
1,1,1-Trichloroethane (TCA)	2.02	0.100	2.000	0	101	67.9	134				
1,1-Dichloropropene	2.07	0.100	2.000	0	103	72.1	133				
Carbon tetrachloride	2.02	0.100	2.000	0	101	64.4	133				
1,2-Dichloroethane (EDC)	2.13	0.100	2.000	0	106	65.8	126				
Benzene	2.14	0.100	2.000	0	107	67.1	132				
Trichloroethene (TCE)	2.10	0.0500	2.000	0	105	71.9	130				
1,2-Dichloropropane	2.11	0.100	2.000	0	106	71.9	131				
Bromodichloromethane	2.05	0.100	2.000	0	102	70	130				
Dibromomethane	2.16	0.100	2.000	0	108	74.2	125				
cis-1,3-Dichloropropene	2.08	0.100	2.000	0	104	62.8	135				
Toluene	2.05	0.100	2.000	0	103	73.6	127				

Work Order: 1712330
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19344** SampType: **LCS** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **LCSW** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785997**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	2.13	0.100	2.000	0	107	58.1	138				
1,1,2-Trichloroethane	2.14	0.100	2.000	0	107	65.4	128				
1,3-Dichloropropane	2.18	0.100	2.000	0	109	71.9	131				
Tetrachloroethene (PCE)	2.08	0.100	2.000	0	104	52.4	140				
Dibromochloromethane	2.13	0.100	2.000	0	106	68.7	139				
1,2-Dibromoethane (EDB)	2.15	0.0250	2.000	0	107	71.2	129				
Chlorobenzene	1.99	0.100	2.000	0	99.7	77.2	122				
1,1,1,2-Tetrachloroethane	1.88	0.100	2.000	0	94.1	76.2	130				
Ethylbenzene	1.99	0.100	2.000	0	99.3	78	127				
m,p-Xylene	3.95	0.100	4.000	0	98.8	77.5	130				
o-Xylene	1.88	0.100	2.000	0	93.9	77.6	126				
Styrene	1.89	0.100	2.000	0	94.3	66.8	137				
Isopropylbenzene	1.92	0.100	2.000	0	95.8	75.9	133				
Bromoform	1.59	0.100	2.000	0	79.5	54.1	146				
1,1,2,2-Tetrachloroethane	2.00	0.100	2.000	0	100	68	134				
n-Propylbenzene	1.98	0.100	2.000	0	98.8	77.1	133				
Bromobenzene	1.94	0.100	2.000	0	97.2	71.1	131				
1,3,5-Trimethylbenzene	2.05	0.100	2.000	0	103	76.2	133				
2-Chlorotoluene	1.93	0.100	2.000	0	96.6	67.1	137				
4-Chlorotoluene	1.94	0.100	2.000	0	97.1	70.7	132				
tert-Butylbenzene	1.91	0.100	2.000	0	95.7	71.3	139				
1,2,3-Trichloropropane	1.98	0.100	2.000	0	98.9	70.8	132				
1,2,4-Trichlorobenzene	1.87	0.200	2.000	0	93.4	61.4	139				
sec-Butylbenzene	1.94	0.100	2.000	0	97.1	77.4	136				
4-Isopropyltoluene	2.11	0.100	2.000	0	105	78.1	131				
1,3-Dichlorobenzene	2.03	0.100	2.000	0	102	73.5	125				
1,4-Dichlorobenzene	2.01	0.100	2.000	0	101	71.4	125				
n-Butylbenzene	2.26	0.100	2.000	0	113	69.8	138				
1,2-Dichlorobenzene	2.01	0.100	2.000	0	101	74.2	123				
1,2-Dibromo-3-chloropropane	1.94	0.100	2.000	0	96.8	53.6	155				
1,2,4-Trimethylbenzene	2.09	0.100	2.000	0	104	72.3	133				

Work Order: 1712330
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19344** SampType: **LCS** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **LCSW** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785997**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	2.06	0.400	2.000	0	103	60.9	141				
Naphthalene	1.90	0.100	2.000	0	94.8	58.2	140				
1,2,3-Trichlorobenzene	1.87	0.400	2.000	0	93.4	61.3	133				
Surr: Dibromofluoromethane	2.54		2.500		101	56.4	141				
Surr: Toluene-d8	2.54		2.500		102	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.62		2.500		105	64.7	128				

Sample ID **MB-19344** SampType: **MBLK** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **MBLKW** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									

Work Order: 1712330
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19344** SampType: **MBLK** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **MBLKW** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									

Work Order: 1712330
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19344** SampType: **MBLK** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **MBLKW** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.47		2.500		98.6	56.4	141				
Surr: Toluene-d8	2.48		2.500		99.2	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.65		2.500		106	64.7	128				

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1712330**
Logged by:	**Brianna Barnes**	Date Received:	**12/28/2017 4:10:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Sample		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Internal): 1712330

Date: 12/28/17 Page: 1 of: 1

Special Remarks: Provide Edd table

Client: EPI

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

Project Name: WA Industries

Project No: 64001

Location: Seattle, WA

Collected by: J. Sherrod

Reports to (PM): seattle@epi-wa.com

Email (PM): Sean Trimble

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	AIR-EFF	/	12/28/17 1610	S	TB	1L	~5 min	/		/		VOCs by 8260C		
2														
3														
4														
5														

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	12/28/17 / 1610	x Casey Orr	12/28/17 1610
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:
- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1712331

January 03, 2018

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 12/28/2017 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *01/03/2018*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1712331

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1712331-001	S2-EFF-12287	12/28/2017 3:30 PM	12/28/2017 4:10 PM

Case Narrative

WO#: **1712331**
Date: **1/3/2018**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1712331**
Date Reported: **1/3/2018**

Client: Environmental Partners, Inc.
Collection Date: 12/28/2017 3:30:00 PM
Project: WA Industries
Lab ID: 1712331-001
Matrix: Air
Client Sample ID: **S2-EFF-12287**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19344		Analyst: NG
Dichlorodifluoromethane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Chloromethane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Vinyl chloride	ND	0.0200		µg/L	1	12/29/2017 2:13:15 PM
Bromomethane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Chloroethane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Methylene chloride	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	12/29/2017 2:13:15 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Chloroform	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Carbon tetrachloride	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Benzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Trichloroethene (TCE)	1.90	0.0500		µg/L	1	12/29/2017 2:13:15 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Bromodichloromethane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Dibromomethane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Toluene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Dibromochloromethane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	12/29/2017 2:13:15 PM
Chlorobenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Ethylbenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
m,p-Xylene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
o-Xylene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Styrene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Isopropylbenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Bromoform	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM

Analytical Report

Work Order: **1712331**
Date Reported: **1/3/2018**

Client: Environmental Partners, Inc.
Collection Date: 12/28/2017 3:30:00 PM
Project: WA Industries
Lab ID: 1712331-001
Matrix: Air
Client Sample ID: **S2-EFF-12287**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19344		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
n-Propylbenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Bromobenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
2-Chlorotoluene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
4-Chlorotoluene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
tert-Butylbenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	12/29/2017 2:13:15 PM
sec-Butylbenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
n-Butylbenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	12/29/2017 2:13:15 PM
Naphthalene	ND	0.100		µg/L	1	12/29/2017 2:13:15 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	12/29/2017 2:13:15 PM
Surr: Dibromofluoromethane	99.3	56.4 - 141		%Rec	1	12/29/2017 2:13:15 PM
Surr: Toluene-d8	99.6	66 - 138		%Rec	1	12/29/2017 2:13:15 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	98.7	64.7 - 128		%Rec	1	12/29/2017 2:13:15 PM

Work Order: 1712331
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712306-004AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **BATCH** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785991**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.0500						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	

Work Order: 1712331
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712306-004AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **BATCH** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785991**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.49		2.500		99.7	61.1	128		0		
Surr: Toluene-d8	2.51		2.500		100	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.69		2.500		108	64.7	128		0		

Work Order: 1712331
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712306-004AREP** SampType: **REP** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **BATCH** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785991**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **LCS-19344** SampType: **LCS** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **LCSW** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785997**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.88	0.100	2.000	0	94.1	38.8	143				
Chloromethane	1.95	0.100	2.000	0	97.4	42.5	131				
Vinyl chloride	2.03	0.0200	2.000	0	102	56.2	130				
Bromomethane	2.11	0.100	2.000	0	106	45.4	138				
Trichlorofluoromethane (CFC-11)	2.08	0.100	2.000	0	104	64.7	129				
Chloroethane	2.12	0.100	2.000	0	106	62.5	123				
1,1-Dichloroethene	2.04	0.100	2.000	0	102	60.7	146				
Methylene chloride	2.02	0.100	2.000	0	101	60.3	135				
trans-1,2-Dichloroethene	2.00	0.100	2.000	0	100	71.3	129				
Methyl tert-butyl ether (MTBE)	1.98	0.100	2.000	0	99.2	59.3	138				
1,1-Dichloroethane	2.09	0.100	2.000	0	105	71.3	129				
2,2-Dichloropropane	1.88	0.200	2.000	0	94.2	37.8	132				
cis-1,2-Dichloroethene	2.02	0.100	2.000	0	101	67.5	127				
Chloroform	2.07	0.100	2.000	0	103	70.3	123				
1,1,1-Trichloroethane (TCA)	2.02	0.100	2.000	0	101	67.9	134				
1,1-Dichloropropene	2.07	0.100	2.000	0	103	72.1	133				
Carbon tetrachloride	2.02	0.100	2.000	0	101	64.4	133				
1,2-Dichloroethane (EDC)	2.13	0.100	2.000	0	106	65.8	126				
Benzene	2.14	0.100	2.000	0	107	67.1	132				
Trichloroethene (TCE)	2.10	0.0500	2.000	0	105	71.9	130				
1,2-Dichloropropane	2.11	0.100	2.000	0	106	71.9	131				
Bromodichloromethane	2.05	0.100	2.000	0	102	70	130				
Dibromomethane	2.16	0.100	2.000	0	108	74.2	125				
cis-1,3-Dichloropropene	2.08	0.100	2.000	0	104	62.8	135				
Toluene	2.05	0.100	2.000	0	103	73.6	127				

Work Order: 1712331
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19344** SampType: **LCS** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **LCSW** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785997**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	2.13	0.100	2.000	0	107	58.1	138				
1,1,2-Trichloroethane	2.14	0.100	2.000	0	107	65.4	128				
1,3-Dichloropropane	2.18	0.100	2.000	0	109	71.9	131				
Tetrachloroethene (PCE)	2.08	0.100	2.000	0	104	52.4	140				
Dibromochloromethane	2.13	0.100	2.000	0	106	68.7	139				
1,2-Dibromoethane (EDB)	2.15	0.0250	2.000	0	107	71.2	129				
Chlorobenzene	1.99	0.100	2.000	0	99.7	77.2	122				
1,1,1,2-Tetrachloroethane	1.88	0.100	2.000	0	94.1	76.2	130				
Ethylbenzene	1.99	0.100	2.000	0	99.3	78	127				
m,p-Xylene	3.95	0.100	4.000	0	98.8	77.5	130				
o-Xylene	1.88	0.100	2.000	0	93.9	77.6	126				
Styrene	1.89	0.100	2.000	0	94.3	66.8	137				
Isopropylbenzene	1.92	0.100	2.000	0	95.8	75.9	133				
Bromoform	1.59	0.100	2.000	0	79.5	54.1	146				
1,1,2,2-Tetrachloroethane	2.00	0.100	2.000	0	100	68	134				
n-Propylbenzene	1.98	0.100	2.000	0	98.8	77.1	133				
Bromobenzene	1.94	0.100	2.000	0	97.2	71.1	131				
1,3,5-Trimethylbenzene	2.05	0.100	2.000	0	103	76.2	133				
2-Chlorotoluene	1.93	0.100	2.000	0	96.6	67.1	137				
4-Chlorotoluene	1.94	0.100	2.000	0	97.1	70.7	132				
tert-Butylbenzene	1.91	0.100	2.000	0	95.7	71.3	139				
1,2,3-Trichloropropane	1.98	0.100	2.000	0	98.9	70.8	132				
1,2,4-Trichlorobenzene	1.87	0.200	2.000	0	93.4	61.4	139				
sec-Butylbenzene	1.94	0.100	2.000	0	97.1	77.4	136				
4-Isopropyltoluene	2.11	0.100	2.000	0	105	78.1	131				
1,3-Dichlorobenzene	2.03	0.100	2.000	0	102	73.5	125				
1,4-Dichlorobenzene	2.01	0.100	2.000	0	101	71.4	125				
n-Butylbenzene	2.26	0.100	2.000	0	113	69.8	138				
1,2-Dichlorobenzene	2.01	0.100	2.000	0	101	74.2	123				
1,2-Dibromo-3-chloropropane	1.94	0.100	2.000	0	96.8	53.6	155				
1,2,4-Trimethylbenzene	2.09	0.100	2.000	0	104	72.3	133				

Work Order: 1712331
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19344** SampType: **LCS** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **LCSW** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785997**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	2.06	0.400	2.000	0	103	60.9	141				
Naphthalene	1.90	0.100	2.000	0	94.8	58.2	140				
1,2,3-Trichlorobenzene	1.87	0.400	2.000	0	93.4	61.3	133				
Surr: Dibromofluoromethane	2.54		2.500		101	56.4	141				
Surr: Toluene-d8	2.54		2.500		102	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.62		2.500		105	64.7	128				

Sample ID **MB-19344** SampType: **MBLK** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **MBLKW** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									

Work Order: 1712331
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19344**	SampType: **MBLK**		Units: **µg/L**	Prep Date: **12/29/2017**		RunNo: **40797**	
Client ID: **MBLKW**	Batch ID: **19344**			Analysis Date: **12/29/2017**		SeqNo: **785998**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									

Work Order: 1712331
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19344** SampType: **MBLK** Units: **µg/L** Prep Date: **12/29/2017** RunNo: **40797**
Client ID: **MBLKW** Batch ID: **19344** Analysis Date: **12/29/2017** SeqNo: **785998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.47		2.500		98.6	56.4	141				
Surr: Toluene-d8	2.48		2.500		99.2	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.65		2.500		106	64.7	128				

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1712331**
Logged by:	**Brianna Barnes**	Date Received:	**12/28/2017 4:10:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes	☑	No ☐	Not Present	☐
2.	How was the sample delivered?	Client				

Log In

3.	Coolers are present?	Yes	☐	No ☑	NA	☐
		Air				
4.	Shipping container/cooler in good condition?	Yes	☑	No ☐		
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No ☐	Not Required	☑
6.	Was an attempt made to cool the samples?	Yes	☐	No ☐	NA	☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes	☐	No ☐	NA	☑
8.	Sample(s) in proper container(s)?	Yes	☑	No ☐		
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No ☐		
10.	Are samples properly preserved?	Yes	☑	No ☐		
11.	Was preservative added to bottles?	Yes	☐	No ☑	NA	☐
12.	Is there headspace in the VOA vials?	Yes	☐	No ☐	NA	☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No ☐		
14.	Does paperwork match bottle labels?	Yes	☑	No ☐		
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No ☐		
16.	Is it clear what analyses were requested?	Yes	☑	No ☐		
17.	Were all holding times able to be met?	Yes	☑	No ☐		

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes	☐	No ☐	NA	☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Date: 12/28/17 Page: 1 of: 1

Laboratory Project No (Internal): 1712331

Special Remarks: Provide EDD table

Client: EPI

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

Project Name: WA Industries

Project No: 64001

Location: Seattle, WA

Collected by: J. Sherrod

Reports to (PM): Sean Trimble

Email (PM): seant@epi-wa.com

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	S2-EFF-122817A	Canister: / Flow Reg:	~~1530~~ 12/28/17 1530	S	TB	1L	.5 min		Pressure: Date:	Pressure: Time:	Pressure: Time:	VOCs by 8260c		
2		Canister: / Flow Reg:	Date: Time:						Pressure: Date:	Pressure: Time:	Pressure: Time:			
3		Canister: / Flow Reg:	Date: Time:						Pressure: Date:	Pressure: Time:	Pressure: Time:			
4		Canister: / Flow Reg:	Date: Time:						Pressure: Date:	Pressure: Time:	Pressure: Time:			
5		Canister: / Flow Reg:	Date: Time:						Pressure: Date:	Pressure: Time:	Pressure: Time:			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	12/28/17 1610	x Casey O'Leary	12/28/17 1610
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1801035

January 08, 2018

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 1/4/2018 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *01/08/2018*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1801035

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1801035-001	S2-EFF-0104	01/04/2018 7:30 AM	01/04/2018 8:51 AM

Case Narrative

WO#: **1801035**
Date: **1/8/2018**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 1/4/2018 7:30:00 AM
Project: WA Industries
Lab ID: 1801035-001 **Matrix:** Air
Client Sample ID: **S2-EFF-0104**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19406 Analyst: MW

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Chloromethane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Vinyl chloride	ND	0.0200		µg/L	1	1/4/2018 2:33:20 PM
Bromomethane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Chloroethane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Methylene chloride	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	1/4/2018 2:33:20 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Chloroform	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Carbon tetrachloride	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Benzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Trichloroethene (TCE)	0.742	0.0500		µg/L	1	1/4/2018 2:33:20 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Bromodichloromethane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Dibromomethane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Toluene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Dibromochloromethane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	1/4/2018 2:33:20 PM
Chlorobenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Ethylbenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
m,p-Xylene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
o-Xylene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Styrene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Isopropylbenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Bromoform	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM

Analytical Report

Work Order: **1801035**
Date Reported: **1/8/2018**

Client: Environmental Partners, Inc.
Collection Date: 1/4/2018 7:30:00 AM
Project: WA Industries
Lab ID: 1801035-001
Matrix: Air
Client Sample ID: **S2-EFF-0104**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19406		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
n-Propylbenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Bromobenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
2-Chlorotoluene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
4-Chlorotoluene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
tert-Butylbenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	1/4/2018 2:33:20 PM
sec-Butylbenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
n-Butylbenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	1/4/2018 2:33:20 PM
Naphthalene	ND	0.100		µg/L	1	1/4/2018 2:33:20 PM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	1/4/2018 2:33:20 PM
Surr: Dibromofluoromethane	101	56.4 - 141		%Rec	1	1/4/2018 2:33:20 PM
Surr: Toluene-d8	96.0	66 - 138		%Rec	1	1/4/2018 2:33:20 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	95.2	64.7 - 128		%Rec	1	1/4/2018 2:33:20 PM

Work Order: 1801035
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1801035-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **1/4/2018** RunNo: **40886**
Client ID: **S2-EFF-0104** Batch ID: **19406** Analysis Date: **1/4/2018** SeqNo: **787765**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	0.913	0.0500						0.7419	20.6	30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	

Work Order: 1801035
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1801035-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **1/4/2018** RunNo: **40886**
Client ID: **S2-EFF-0104** Batch ID: **19406** Analysis Date: **1/4/2018** SeqNo: **787765**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.53		2.500		101	61.1	128		0		
Surr: Toluene-d8	2.39		2.500		95.6	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.38		2.500		95.2	64.7	128		0		

Work Order: 1801035
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**1801035-001AREP**	SampType:	**REP**			Units:	**µg/L**	Prep Date:	**1/4/2018**		RunNo:	**40886**
Client ID:	**S2-EFF-0104**	Batch ID:	**19406**					Analysis Date:	**1/4/2018**		SeqNo:	**787765**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**MB-19406**	SampType:	**MBLK**			Units:	**µg/L**	Prep Date:	**1/4/2018**		RunNo:	**40886**
Client ID:	**MBLKW**	Batch ID:	**19406**					Analysis Date:	**1/4/2018**		SeqNo:	**787769**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									

Work Order: 1801035
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19406** SampType: **MBLK** Units: **µg/L** Prep Date: **1/4/2018** RunNo: **40886**
Client ID: **MBLKW** Batch ID: **19406** Analysis Date: **1/4/2018** SeqNo: **787769**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									

Work Order: 1801035
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19406** SampType: **MBLK** Units: **µg/L** Prep Date: **1/4/2018** RunNo: **40886**
Client ID: **MBLKW** Batch ID: **19406** Analysis Date: **1/4/2018** SeqNo: **787769**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.53		2.500		101	56.4	141				
Surr: Toluene-d8	2.37		2.500		94.7	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.32		2.500		92.7	64.7	128				

Sample ID **LCS-19406** SampType: **LCS** Units: **µg/L** Prep Date: **1/4/2018** RunNo: **40886**
Client ID: **LCSW** Batch ID: **19406** Analysis Date: **1/4/2018** SeqNo: **787768**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	1.81	0.100	2.000	0	90.6	38.8	143				
Chloromethane	1.86	0.100	2.000	0	93.0	42.5	131				
Vinyl chloride	1.87	0.0200	2.000	0	93.4	56.2	130				
Bromomethane	2.24	0.100	2.000	0	112	45.4	138				
Trichlorofluoromethane (CFC-11)	1.95	0.100	2.000	0	97.5	64.7	129				
Chloroethane	1.94	0.100	2.000	0	96.9	62.5	123				
1,1-Dichloroethene	1.95	0.100	2.000	0	97.4	60.7	146				
Methylene chloride	1.98	0.100	2.000	0	98.8	60.3	135				
trans-1,2-Dichloroethene	1.95	0.100	2.000	0	97.4	71.3	129				
Methyl tert-butyl ether (MTBE)	1.98	0.100	2.000	0	98.9	59.3	138				
1,1-Dichloroethane	1.96	0.100	2.000	0	98.1	71.3	129				
2,2-Dichloropropane	1.87	0.200	2.000	0	93.5	37.8	132				
cis-1,2-Dichloroethene	1.97	0.100	2.000	0	98.7	67.5	127				
Chloroform	2.01	0.100	2.000	0	100	70.3	123				
1,1,1-Trichloroethane (TCA)	1.95	0.100	2.000	0	97.5	67.9	134				
1,1-Dichloropropene	1.94	0.100	2.000	0	97.2	72.1	133				
Carbon tetrachloride	1.96	0.100	2.000	0	97.9	64.4	133				
1,2-Dichloroethane (EDC)	1.99	0.100	2.000	0	99.5	65.8	126				
Benzene	1.97	0.100	2.000	0	98.6	67.1	132				

Work Order: 1801035
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19406** SampType: **LCS** Units: **µg/L** Prep Date: **1/4/2018** RunNo: **40886**
Client ID: **LCSW** Batch ID: **19406** Analysis Date: **1/4/2018** SeqNo: **787768**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	2.00	0.0500	2.000	0	100	71.9	130				
1,2-Dichloropropane	1.81	0.100	2.000	0	90.5	71.9	131				
Bromodichloromethane	1.99	0.100	2.000	0	99.5	70	130				
Dibromomethane	1.95	0.100	2.000	0	97.6	74.2	125				
cis-1,3-Dichloropropene	1.88	0.100	2.000	0	93.9	62.8	135				
Toluene	1.98	0.100	2.000	0	99.2	73.6	127				
trans-1,3-Dichloropropylene	2.08	0.100	2.000	0	104	58.1	138				
1,1,2-Trichloroethane	2.01	0.100	2.000	0	101	65.4	128				
1,3-Dichloropropane	2.00	0.100	2.000	0	99.8	71.9	131				
Tetrachloroethene (PCE)	1.98	0.100	2.000	0	98.9	52.4	140				
Dibromochloromethane	2.00	0.100	2.000	0	99.9	68.7	139				
1,2-Dibromoethane (EDB)	2.00	0.0250	2.000	0	99.9	71.2	129				
Chlorobenzene	1.97	0.100	2.000	0	98.5	77.2	122				
1,1,1,2-Tetrachloroethane	2.00	0.100	2.000	0	100	76.2	130				
Ethylbenzene	2.00	0.100	2.000	0	99.9	78	127				
m,p-Xylene	3.98	0.100	4.000	0	99.5	77.5	130				
o-Xylene	1.99	0.100	2.000	0	99.5	77.6	126				
Styrene	1.99	0.100	2.000	0	99.3	66.8	137				
Isopropylbenzene	2.03	0.100	2.000	0	101	75.9	133				
Bromoform	1.92	0.100	2.000	0	95.9	54.1	146				
1,1,2,2-Tetrachloroethane	1.92	0.100	2.000	0	95.9	68	134				
n-Propylbenzene	2.01	0.100	2.000	0	100	77.1	133				
Bromobenzene	2.00	0.100	2.000	0	99.8	71.1	131				
1,3,5-Trimethylbenzene	1.99	0.100	2.000	0	99.7	76.2	133				
2-Chlorotoluene	1.98	0.100	2.000	0	99.2	67.1	137				
4-Chlorotoluene	1.97	0.100	2.000	0	98.7	70.7	132				
tert-Butylbenzene	1.97	0.100	2.000	0	98.6	71.3	139				
1,2,3-Trichloropropane	1.91	0.100	2.000	0	95.5	70.8	132				
1,2,4-Trichlorobenzene	1.83	0.200	2.000	0	91.6	61.4	139				
sec-Butylbenzene	1.99	0.100	2.000	0	99.3	77.4	136				
4-Isopropyltoluene	1.98	0.100	2.000	0	99.0	78.1	131				

Work Order: 1801035
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19406** SampType: **LCS** Units: **µg/L** Prep Date: **1/4/2018** RunNo: **40886**
Client ID: **LCSW** Batch ID: **19406** Analysis Date: **1/4/2018** SeqNo: **787768**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	2.02	0.100	2.000	0	101	73.5	125				
1,4-Dichlorobenzene	2.02	0.100	2.000	0	101	71.4	125				
n-Butylbenzene	1.99	0.100	2.000	0	99.6	69.8	138				
1,2-Dichlorobenzene	2.05	0.100	2.000	0	102	74.2	123				
1,2-Dibromo-3-chloropropane	2.02	0.100	2.000	0	101	53.6	155				
1,2,4-Trimethylbenzene	2.00	0.100	2.000	0	99.9	72.3	133				
Hexachlorobutadiene	2.07	0.400	2.000	0	103	60.9	141				
Naphthalene	1.97	0.100	2.000	0	98.3	58.2	140				
1,2,3-Trichlorobenzene	1.82	0.400	2.000	0	90.9	61.3	133				
Surr: Dibromofluoromethane	2.52		2.500		101	56.4	141				
Surr: Toluene-d8	2.58		2.500		103	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.62		2.500		105	64.7	128				

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1801035**
Logged by:	**Clare Griggs**	Date Received:	**1/4/2018 8:51:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Sample		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Internal): 1801035

Date: 1/14/18 Page: 1 of: 1

Special Remarks: Provide EDD table

Client: EPI

Address: 1180 NW Maple St. Issaquah, WA

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0210

Fax:

Project Name: WA Industries

Project No: 64091

Location: 825 S. & Dakota St. Seattle, WA

Collected by: J. Shenod

Reports to (PM): Sean Trimble

Email (PM): sean@epi-wa.com

Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1 S2-EFF-0104	Canister / Flow Reg	1/4/18 Date / 0730 Time	S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260C		
2	Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
3	Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
4	Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
5	Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

Turn-Around Time:
- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	1/4/18 0851	x	1/4/18 0851
Relinquished	Date/Time	Received	Date/Time
x		x	

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1801169

January 15, 2018

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 1/12/2018 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *01/15/2018*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1801169

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1801169-001	S2-EFF-0112	01/12/2018 6:45 AM	01/12/2018 8:12 AM

Case Narrative

WO#: **1801169**
Date: **1/15/2018**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1801169**
Date Reported: **1/15/2018**

Client: Environmental Partners, Inc.
Collection Date: 1/12/2018 6:45:00 AM
Project: WA Industries
Lab ID: 1801169-001
Matrix: Air
Client Sample ID: **S2-EFF-0112**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19489		Analyst: NG
Dichlorodifluoromethane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Chloromethane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Vinyl chloride	ND	0.0200		µg/L	1	1/12/2018 3:18:06 PM
Bromomethane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Chloroethane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,1-Dichloroethene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Methylene chloride	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,1-Dichloroethane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
2,2-Dichloropropane	ND	0.200		µg/L	1	1/12/2018 3:18:06 PM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Chloroform	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,1-Dichloropropene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Carbon tetrachloride	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Benzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Trichloroethene (TCE)	0.859	0.0500		µg/L	1	1/12/2018 3:18:06 PM
1,2-Dichloropropane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Bromodichloromethane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Dibromomethane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Toluene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,3-Dichloropropane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Dibromochloromethane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	1/12/2018 3:18:06 PM
Chlorobenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Ethylbenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
m,p-Xylene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
o-Xylene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Styrene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Isopropylbenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Bromoform	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM

Analytical Report

Work Order: **1801169**
Date Reported: **1/15/2018**

Client: Environmental Partners, Inc.
Collection Date: 1/12/2018 6:45:00 AM
Project: WA Industries
Lab ID: 1801169-001
Matrix: Air
Client Sample ID: **S2-EFF-0112**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19489		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
n-Propylbenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Bromobenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
2-Chlorotoluene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
4-Chlorotoluene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
tert-Butylbenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,2,4-Trichlorobenzene	ND	0.200	Q	µg/L	1	1/12/2018 3:18:06 PM
sec-Butylbenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
4-Isopropyltoluene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
n-Butylbenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
Hexachlorobutadiene	ND	0.400		µg/L	1	1/12/2018 3:18:06 PM
Naphthalene	ND	0.100		µg/L	1	1/12/2018 3:18:06 PM
1,2,3-Trichlorobenzene	ND	0.400	Q	µg/L	1	1/12/2018 3:18:06 PM
Surr: Dibromofluoromethane	107	56.4 - 141		%Rec	1	1/12/2018 3:18:06 PM
Surr: Toluene-d8	103	66 - 138		%Rec	1	1/12/2018 3:18:06 PM
Surr: 1-Bromo-4-fluorobenzene-BFB	98.6	64.7 - 128		%Rec	1	1/12/2018 3:18:06 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1801169
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1801169-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **1/12/2018** RunNo: **41093**
Client ID: **S2-EFF-0112** Batch ID: **19489** Analysis Date: **1/12/2018** SeqNo: **791645**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	1.08	0.0500						0.8594	22.9	30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	

Work Order: 1801169
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1801169-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **1/12/2018** RunNo: **41093**
Client ID: **S2-EFF-0112** Batch ID: **19489** Analysis Date: **1/12/2018** SeqNo: **791645**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	Q
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	Q
Surr: Dibromofluoromethane	2.63		2.500		105	61.1	128		0		
Surr: Toluene-d8	2.58		2.500		103	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.53		2.500		101	64.7	128		0		

Work Order: 1801169
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1801169-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **1/12/2018** RunNo: **41093**
Client ID: **S2-EFF-0112** Batch ID: **19489** Analysis Date: **1/12/2018** SeqNo: **791645**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-19489** SampType: **LCS** Units: **µg/L** Prep Date: **1/12/2018** RunNo: **41093**
Client ID: **LCSW** Batch ID: **19489** Analysis Date: **1/12/2018** SeqNo: **791649**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	2.45	0.100	2.000	0	122	38.8	143				
Chloromethane	2.33	0.100	2.000	0	117	42.5	131				
Vinyl chloride	2.22	0.0200	2.000	0	111	56.2	130				
Bromomethane	2.14	0.100	2.000	0	107	45.4	138				
Trichlorofluoromethane (CFC-11)	2.09	0.100	2.000	0	104	64.7	129				
Chloroethane	2.15	0.100	2.000	0	108	62.5	123				
1,1-Dichloroethene	2.08	0.100	2.000	0	104	60.7	146				
Methylene chloride	2.10	0.100	2.000	0	105	60.3	135				
trans-1,2-Dichloroethene	2.09	0.100	2.000	0	104	71.3	129				
Methyl tert-butyl ether (MTBE)	1.95	0.100	2.000	0	97.7	59.3	138				
1,1-Dichloroethane	2.11	0.100	2.000	0	106	71.3	129				
2,2-Dichloropropane	2.56	0.200	2.000	0	128	37.8	132				
cis-1,2-Dichloroethene	2.08	0.100	2.000	0	104	67.5	127				
Chloroform	2.09	0.100	2.000	0	105	70.3	123				
1,1,1-Trichloroethane (TCA)	2.04	0.100	2.000	0	102	67.9	134				
1,1-Dichloropropene	2.09	0.100	2.000	0	104	72.1	133				
Carbon tetrachloride	2.07	0.100	2.000	0	104	64.4	133				
1,2-Dichloroethane (EDC)	2.05	0.100	2.000	0	103	65.8	126				
Benzene	2.06	0.100	2.000	0	103	67.1	132				
Trichloroethene (TCE)	2.07	0.0500	2.000	0	103	71.9	130				
1,2-Dichloropropane	2.10	0.100	2.000	0	105	71.9	131				
Bromodichloromethane	2.12	0.100	2.000	0	106	70	130				
Dibromomethane	2.10	0.100	2.000	0	105	74.2	125				
cis-1,3-Dichloropropene	2.15	0.100	2.000	0	108	62.8	135				

Work Order: 1801169
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19489** SampType: **LCS** Units: **µg/L** Prep Date: **1/12/2018** RunNo: **41093**
Client ID: **LCSW** Batch ID: **19489** Analysis Date: **1/12/2018** SeqNo: **791649**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	2.08	0.100	2.000	0	104	73.6	127				
trans-1,3-Dichloropropylene	2.19	0.100	2.000	0	110	58.1	138				
1,1,2-Trichloroethane	2.09	0.100	2.000	0	104	65.4	128				
1,3-Dichloropropane	2.13	0.100	2.000	0	107	71.9	131				
Tetrachloroethene (PCE)	2.04	0.100	2.000	0	102	52.4	140				
Dibromochloromethane	2.29	0.100	2.000	0	114	68.7	139				
1,2-Dibromoethane (EDB)	2.06	0.0250	2.000	0	103	71.2	129				
Chlorobenzene	1.98	0.100	2.000	0	99.0	77.2	122				
1,1,1,2-Tetrachloroethane	2.06	0.100	2.000	0	103	76.2	130				
Ethylbenzene	1.98	0.100	2.000	0	99.0	78	127				
m,p-Xylene	3.90	0.100	4.000	0	97.6	77.5	130				
o-Xylene	1.95	0.100	2.000	0	97.5	77.6	126				
Styrene	1.99	0.100	2.000	0	99.3	66.8	137				
Isopropylbenzene	1.98	0.100	2.000	0	98.8	75.9	133				
Bromoform	1.95	0.100	2.000	0	97.5	54.1	146				
1,1,2,2-Tetrachloroethane	2.01	0.100	2.000	0	101	68	134				
n-Propylbenzene	2.02	0.100	2.000	0	101	77.1	133				
Bromobenzene	1.97	0.100	2.000	0	98.4	71.1	131				
1,3,5-Trimethylbenzene	2.02	0.100	2.000	0	101	76.2	133				
2-Chlorotoluene	2.04	0.100	2.000	0	102	67.1	137				
4-Chlorotoluene	1.96	0.100	2.000	0	98.0	70.7	132				
tert-Butylbenzene	1.93	0.100	2.000	0	96.3	71.3	139				
1,2,3-Trichloropropane	1.72	0.100	2.000	0	86.1	70.8	132				
1,2,4-Trichlorobenzene	1.49	0.200	2.000	0	74.4	61.4	139				
sec-Butylbenzene	1.93	0.100	2.000	0	96.3	77.4	136				
4-Isopropyltoluene	2.04	0.100	2.000	0	102	78.1	131				
1,3-Dichlorobenzene	2.09	0.100	2.000	0	104	73.5	125				
1,4-Dichlorobenzene	2.07	0.100	2.000	0	104	71.4	125				
n-Butylbenzene	2.15	0.100	2.000	0	107	69.8	138				
1,2-Dichlorobenzene	2.05	0.100	2.000	0	102	74.2	123				
1,2-Dibromo-3-chloropropane	2.05	0.100	2.000	0	102	53.6	155				

Work Order: 1801169
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19489** SampType: **LCS** Units: **µg/L** Prep Date: **1/12/2018** RunNo: **41093**
Client ID: **LCSW** Batch ID: **19489** Analysis Date: **1/12/2018** SeqNo: **791649**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	2.02	0.100	2.000	0	101	72.3	133				
Hexachlorobutadiene	1.97	0.400	2.000	0	98.5	60.9	141				
Naphthalene	1.87	0.100	2.000	0	93.4	58.2	140				
1,2,3-Trichlorobenzene	1.53	0.400	2.000	0	76.3	61.3	133				
Surr: Dibromofluoromethane	2.65		2.500		106	56.4	141				
Surr: Toluene-d8	2.57		2.500		103	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.64		2.500		106	64.7	128				

Sample ID **MB-19489** SampType: **MBLK** Units: **µg/L** Prep Date: **1/12/2018** RunNo: **41093**
Client ID: **MBLKW** Batch ID: **19489** Analysis Date: **1/12/2018** SeqNo: **791650**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									

Work Order: 1801169
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19489** SampType: **MBLK** Units: **µg/L** Prep Date: **1/12/2018** RunNo: **41093**
Client ID: **MBLKW** Batch ID: **19489** Analysis Date: **1/12/2018** SeqNo: **791650**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									Q
sec-Butylbenzene	ND	0.100									

Work Order: 1801169
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19489** SampType: **MBLK** Units: **µg/L** Prep Date: **1/12/2018** RunNo: **41093**
Client ID: **MBLKW** Batch ID: **19489** Analysis Date: **1/12/2018** SeqNo: **791650**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									Q
Surr: Dibromofluoromethane	2.65		2.500		106	56.4	141				
Surr: Toluene-d8	2.57		2.500		103	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.50		2.500		99.8	64.7	128				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1801169**
Logged by:	**Clare Griggs**	Date Received:	**1/12/2018 8:12:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Sample		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 1/12/18 Page: 1 of: 1

Laboratory Project No (Internal): 1801169

Special Remarks: Provide EDD table

Project Name: WA Industries

Project No: 64001

Location: 825 S. Dakota St. Seattle, WA

Collected by: J. Sherrod

Reports to (PM): Sean Trimble

Client: Environmental Partners Inc.

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

Email (PM): sean@epi-wa.com

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	S2-EFF-0112	Canister: / Flow Reg:	Date: 1/12/18 Time: 0645	S	TB	1L	.5 min		Pressure: Date:	Pressure: Time:	Pressure: Time:	VOCs by 8260c		
2		Canister: Flow Reg:	Date: Time:						Pressure: Date:	Pressure: Time:	Pressure: Time:			
3		Canister: Flow Reg:	Date: Time:						Pressure: Date:	Pressure: Time:	Pressure: Time:			
4		Canister: Flow Reg:	Date: Time:						Pressure: Date:	Pressure: Time:	Pressure: Time:			
5		Canister: Flow Reg:	Date: Time:						Pressure: Date:	Pressure: Time:	Pressure: Time:			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	1/12/18 / 812	x	1/12/18 8:12
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1801245

January 24, 2018

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 1/18/2018 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *01/24/2018*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1801245

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1801245-001	S2-EFF-0118	01/18/2018 12:30 PM	01/18/2018 1:19 PM

Case Narrative

WO#: **1801245**
Date: **1/24/2018**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 1/18/2018 12:30:00 PM
Project: WA Industries
Lab ID: 1801245-001 **Matrix:** Air
Client Sample ID: **S2-EFF-0118**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 19558 Analyst: MW

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Chloromethane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Vinyl chloride	ND	0.0200		µg/L	1	1/19/2018 11:56:54 AM
Bromomethane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Chloroethane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,1-Dichloroethene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Methylene chloride	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,1-Dichloroethane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
2,2-Dichloropropane	ND	0.200		µg/L	1	1/19/2018 11:56:54 AM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Chloroform	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,1-Dichloropropene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Carbon tetrachloride	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Benzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Trichloroethene (TCE)	0.972	0.0500		µg/L	1	1/19/2018 11:56:54 AM
1,2-Dichloropropane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Bromodichloromethane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Dibromomethane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Toluene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,3-Dichloropropane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Dibromochloromethane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	1/19/2018 11:56:54 AM
Chlorobenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Ethylbenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
m,p-Xylene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
o-Xylene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Styrene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Isopropylbenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Bromoform	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM

Analytical Report

Work Order: **1801245**
Date Reported: **1/24/2018**

Client: Environmental Partners, Inc.
Collection Date: 1/18/2018 12:30:00 PM
Project: WA Industries
Lab ID: 1801245-001
Matrix: Air
Client Sample ID: **S2-EFF-0118**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19558		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
n-Propylbenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Bromobenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
2-Chlorotoluene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
4-Chlorotoluene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
tert-Butylbenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	1/19/2018 11:56:54 AM
sec-Butylbenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
4-Isopropyltoluene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
n-Butylbenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
Hexachlorobutadiene	ND	0.400		µg/L	1	1/19/2018 11:56:54 AM
Naphthalene	ND	0.100		µg/L	1	1/19/2018 11:56:54 AM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	1/19/2018 11:56:54 AM
Surr: Dibromofluoromethane	103	56.4 - 141		%Rec	1	1/19/2018 11:56:54 AM
Surr: Toluene-d8	88.0	66 - 138		%Rec	1	1/19/2018 11:56:54 AM
Surr: 1-Bromo-4-fluorobenzene-BFB	94.6	64.7 - 128		%Rec	1	1/19/2018 11:56:54 AM

Work Order: 1801245
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1801245-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **1/19/2018** RunNo: **41215**
Client ID: **S2-EFF-0118** Batch ID: **19558** Analysis Date: **1/19/2018** SeqNo: **794408**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	1.03	0.0500						0.9721	5.47	30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	

Work Order: 1801245
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1801245-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **1/19/2018** RunNo: **41215**
Client ID: **S2-EFF-0118** Batch ID: **19558** Analysis Date: **1/19/2018** SeqNo: **794408**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.57		2.500		103	61.1	128		0		
Surr: Toluene-d8	2.09		2.500		83.4	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.26		2.500		90.2	64.7	128		0		

Work Order: 1801245
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**1801245-001AREP**	SampType:	**REP**		Units:	**µg/L**	Prep Date:	**1/19/2018**	RunNo:	**41215**	
Client ID:	**S2-EFF-0118**	Batch ID:	**19558**				Analysis Date:	**1/19/2018**	SeqNo:	**794408**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**MB-19558**	SampType:	**MBLK**		Units:	**µg/L**	Prep Date:	**1/19/2018**	RunNo:	**41215**	
Client ID:	**MBLKW**	Batch ID:	**19558**				Analysis Date:	**1/19/2018**	SeqNo:	**794412**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									
Toluene	ND	0.100									

Work Order: 1801245
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19558** SampType: **MBLK** Units: **µg/L** Prep Date: **1/19/2018** RunNo: **41215**
Client ID: **MBLKW** Batch ID: **19558** Analysis Date: **1/19/2018** SeqNo: **794412**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.100									

Work Order: 1801245
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19558** SampType: **MBLK** Units: **µg/L** Prep Date: **1/19/2018** RunNo: **41215**
Client ID: **MBLKW** Batch ID: **19558** Analysis Date: **1/19/2018** SeqNo: **794412**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.45		2.500		98.0	56.4	141				
Surr: Toluene-d8	2.46		2.500		98.3	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.24		2.500		89.5	64.7	128				

Sample ID **LCS-19558** SampType: **LCS** Units: **µg/L** Prep Date: **1/19/2018** RunNo: **41215**
Client ID: **LCSW** Batch ID: **19558** Analysis Date: **1/19/2018** SeqNo: **794411**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	2.30	0.100	2.000	0	115	38.8	143				
Chloromethane	1.98	0.100	2.000	0	98.8	42.5	131				
Vinyl chloride	2.24	0.0200	2.000	0	112	56.2	130				
Bromomethane	2.48	0.100	2.000	0	124	45.4	138				
Trichlorofluoromethane (CFC-11)	2.23	0.100	2.000	0	111	64.7	129				
Chloroethane	2.43	0.100	2.000	0	121	62.5	123				
1,1-Dichloroethene	2.15	0.100	2.000	0	107	60.7	146				
Methylene chloride	2.00	0.100	2.000	0	100	60.3	135				
trans-1,2-Dichloroethene	2.02	0.100	2.000	0	101	71.3	129				
Methyl tert-butyl ether (MTBE)	1.89	0.100	2.000	0	94.3	59.3	138				
1,1-Dichloroethane	2.13	0.100	2.000	0	106	71.3	129				
2,2-Dichloropropane	1.68	0.200	2.000	0	83.8	37.8	132				
cis-1,2-Dichloroethene	1.90	0.100	2.000	0	94.9	67.5	127				
Chloroform	2.04	0.100	2.000	0	102	70.3	123				
1,1,1-Trichloroethane (TCA)	2.13	0.100	2.000	0	106	67.9	134				
1,1-Dichloropropene	1.99	0.100	2.000	0	99.7	72.1	133				
Carbon tetrachloride	2.03	0.100	2.000	0	102	64.4	133				
1,2-Dichloroethane (EDC)	2.05	0.100	2.000	0	103	65.8	126				
Benzene	2.17	0.100	2.000	0	109	67.1	132				

Work Order: 1801245
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19558** SampType: **LCS** Units: **µg/L** Prep Date: **1/19/2018** RunNo: **41215**
Client ID: **LCSW** Batch ID: **19558** Analysis Date: **1/19/2018** SeqNo: **794411**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	2.20	0.0500	2.000	0	110	71.9	130				
1,2-Dichloropropane	2.03	0.100	2.000	0	101	71.9	131				
Bromodichloromethane	2.00	0.100	2.000	0	100	70	130				
Dibromomethane	1.94	0.100	2.000	0	97.2	74.2	125				
cis-1,3-Dichloropropene	1.73	0.100	2.000	0	86.4	62.8	135				
Toluene	1.93	0.100	2.000	0	96.5	73.6	127				
trans-1,3-Dichloropropylene	1.93	0.100	2.000	0	96.5	58.1	138				
1,1,2-Trichloroethane	1.88	0.100	2.000	0	93.8	65.4	128				
1,3-Dichloropropane	1.85	0.100	2.000	0	92.6	71.9	131				
Tetrachloroethene (PCE)	2.07	0.100	2.000	0	103	52.4	140				
Dibromochloromethane	1.88	0.100	2.000	0	93.9	68.7	139				
1,2-Dibromoethane (EDB)	1.85	0.0250	2.000	0	92.7	71.2	129				
Chlorobenzene	2.06	0.100	2.000	0	103	77.2	122				
1,1,1,2-Tetrachloroethane	2.07	0.100	2.000	0	103	76.2	130				
Ethylbenzene	2.06	0.100	2.000	0	103	78	127				
m,p-Xylene	4.12	0.100	4.000	0	103	77.5	130				
o-Xylene	2.03	0.100	2.000	0	101	77.6	126				
Styrene	1.99	0.100	2.000	0	99.7	66.8	137				
Isopropylbenzene	2.05	0.100	2.000	0	102	75.9	133				
Bromoform	1.82	0.100	2.000	0	91.2	54.1	146				
1,1,2,2-Tetrachloroethane	1.64	0.100	2.000	0	81.8	68	134				
n-Propylbenzene	2.00	0.100	2.000	0	100	77.1	133				
Bromobenzene	2.02	0.100	2.000	0	101	71.1	131				
1,3,5-Trimethylbenzene	2.03	0.100	2.000	0	102	76.2	133				
2-Chlorotoluene	1.96	0.100	2.000	0	97.9	67.1	137				
4-Chlorotoluene	2.00	0.100	2.000	0	99.8	70.7	132				
tert-Butylbenzene	2.01	0.100	2.000	0	100	71.3	139				
1,2,3-Trichloropropane	1.75	0.100	2.000	0	87.5	70.8	132				
1,2,4-Trichlorobenzene	1.63	0.200	2.000	0	81.4	61.4	139				
sec-Butylbenzene	2.00	0.100	2.000	0	100	77.4	136				
4-Isopropyltoluene	1.89	0.100	2.000	0	94.7	78.1	131				

Work Order: 1801245
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19558** SampType: **LCS** Units: **µg/L** Prep Date: **1/19/2018** RunNo: **41215**
Client ID: **LCSW** Batch ID: **19558** Analysis Date: **1/19/2018** SeqNo: **794411**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	2.10	0.100	2.000	0	105	73.5	125				
1,4-Dichlorobenzene	2.09	0.100	2.000	0	105	71.4	125				
n-Butylbenzene	1.93	0.100	2.000	0	96.6	69.8	138				
1,2-Dichlorobenzene	2.06	0.100	2.000	0	103	74.2	123				
1,2-Dibromo-3-chloropropane	1.72	0.100	2.000	0	86.2	53.6	155				
1,2,4-Trimethylbenzene	1.98	0.100	2.000	0	99.2	72.3	133				
Hexachlorobutadiene	2.08	0.400	2.000	0	104	60.9	141				
Naphthalene	1.72	0.100	2.000	0	86.1	58.2	140				
1,2,3-Trichlorobenzene	1.60	0.400	2.000	0	80.2	61.3	133				
Surr: Dibromofluoromethane	2.49		2.500		99.6	56.4	141				
Surr: Toluene-d8	2.39		2.500		95.8	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.60		2.500		104	64.7	128				

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1801245**
Logged by:	**Clare Griggs**	Date Received:	**1/18/2018 1:19:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Sample		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Date: 1/18/18 Page: 1 of: 1

Laboratory Project No (Internal): 1801245

Special Remarks: Provide EDD table

Project Name: WA Industries

Project No: 64001

Location: Seattle, WA

Collected by: J. Sherrod

Reports to (PM): Sean Trimble

Email (PM): seant@epi-wa.com

Client: Environmental Partners Inc.

Address: 1180 NW Maple St.

City, State, Zip: Issaquah, WA 98027

Telephone: 425-395-0010

Fax:

	Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1	S2-EFF-0118	Canister / Flow Reg	1/18/18 Date / 1230 Time	~~A~~ S	TB	1L	.5 min		Pressure / Date	Pressure / Time	Pressure / Time	VOCs by 8260C		
2		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
3		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
4		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			
5		Canister / Flow Reg	Date / Time						Pressure / Date	Pressure / Time	Pressure / Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	1/18/18 / 1319	x	1/18/18 1319
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Environmental Partners, Inc.
Sean Trimble
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: WA Industries
Work Order Number: 1802282

March 01, 2018

Attention Sean Trimble:

Fremont Analytical, Inc. received 1 sample(s) on 2/26/2018 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *03/01/2018*

CLIENT: Environmental Partners, Inc.
Project: WA Industries
Work Order: 1802282

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1802282-001	S2-EFF-0226	02/26/2018 7:47 AM	02/26/2018 1:20 PM

Case Narrative

WO#: **1802282**
Date: **3/1/2018**

CLIENT: Environmental Partners, Inc.
Project: WA Industries

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: Environmental Partners, Inc. **Collection Date:** 2/26/2018 7:47:00 AM
Project: WA Industries
Lab ID: 1802282-001 **Matrix:** Air
Client Sample ID: **S2-EFF-0226**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19935		Analyst: NG
Dichlorodifluoromethane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Chloromethane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Vinyl chloride	ND	0.0200		µg/L	1	2/28/2018 11:50:45 AM
Bromomethane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Trichlorofluoromethane (CFC-11)	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Chloroethane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,1-Dichloroethene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Methylene chloride	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
trans-1,2-Dichloroethene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Methyl tert-butyl ether (MTBE)	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,1-Dichloroethane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
2,2-Dichloropropane	ND	0.200		µg/L	1	2/28/2018 11:50:45 AM
cis-1,2-Dichloroethene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Chloroform	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,1,1-Trichloroethane (TCA)	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,1-Dichloropropene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Carbon tetrachloride	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,2-Dichloroethane (EDC)	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Benzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Trichloroethene (TCE)	0.818	0.0500		µg/L	1	2/28/2018 11:50:45 AM
1,2-Dichloropropane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Bromodichloromethane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Dibromomethane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
cis-1,3-Dichloropropene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Toluene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
trans-1,3-Dichloropropylene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,1,2-Trichloroethane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,3-Dichloropropane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Tetrachloroethene (PCE)	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Dibromochloromethane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,2-Dibromoethane (EDB)	ND	0.0250		µg/L	1	2/28/2018 11:50:45 AM
Chlorobenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,1,1,2-Tetrachloroethane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Ethylbenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
m,p-Xylene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
o-Xylene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Styrene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Isopropylbenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Bromoform	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM

Analytical Report

Work Order: **1802282**
Date Reported: **3/1/2018**

Client: Environmental Partners, Inc.
Collection Date: 2/26/2018 7:47:00 AM
Project: WA Industries
Lab ID: 1802282-001
Matrix: Air
Client Sample ID: **S2-EFF-0226**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19935		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
n-Propylbenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Bromobenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,3,5-Trimethylbenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
2-Chlorotoluene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
4-Chlorotoluene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
tert-Butylbenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,2,3-Trichloropropane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,2,4-Trichlorobenzene	ND	0.200		µg/L	1	2/28/2018 11:50:45 AM
sec-Butylbenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
4-Isopropyltoluene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,3-Dichlorobenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,4-Dichlorobenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
n-Butylbenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,2-Dichlorobenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,2-Dibromo-3-chloropropane	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,2,4-Trimethylbenzene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
Hexachlorobutadiene	ND	0.400		µg/L	1	2/28/2018 11:50:45 AM
Naphthalene	ND	0.100		µg/L	1	2/28/2018 11:50:45 AM
1,2,3-Trichlorobenzene	ND	0.400		µg/L	1	2/28/2018 11:50:45 AM
Surr: Dibromofluoromethane	103	56.4 - 141		%Rec	1	2/28/2018 11:50:45 AM
Surr: Toluene-d8	100	66 - 138		%Rec	1	2/28/2018 11:50:45 AM
Surr: 1-Bromo-4-fluorobenzene-BFB	101	64.7 - 128		%Rec	1	2/28/2018 11:50:45 AM

Work Order: 1802282
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19935** SampType: **LCS** Units: **µg/L** Prep Date: **2/28/2018** RunNo: **42008**
Client ID: **LCSW** Batch ID: **19935** Analysis Date: **2/28/2018** SeqNo: **810143**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	2.31	0.100	2.000	0	115	38.8	143				
Chloromethane	1.90	0.100	2.000	0	94.8	42.5	131				
Vinyl chloride	1.99	0.0200	2.000	0	99.4	56.2	130				
Bromomethane	2.20	0.100	2.000	0	110	45.4	138				
Trichlorofluoromethane (CFC-11)	2.04	0.100	2.000	0	102	64.7	129				
Chloroethane	1.93	0.100	2.000	0	96.3	62.5	123				
1,1-Dichloroethene	1.97	0.100	2.000	0	98.7	60.7	146				
Methylene chloride	1.87	0.100	2.000	0	93.4	60.3	135				
trans-1,2-Dichloroethene	1.91	0.100	2.000	0	95.6	71.3	129				
Methyl tert-butyl ether (MTBE)	1.94	0.100	2.000	0	96.8	59.3	138				
1,1-Dichloroethane	1.92	0.100	2.000	0	96.1	71.3	129				
2,2-Dichloropropane	3.01	0.200	2.000	0	151	37.8	132				S
cis-1,2-Dichloroethene	1.88	0.100	2.000	0	94.1	67.5	127				
Chloroform	1.86	0.100	2.000	0	93.1	70.3	123				
1,1,1-Trichloroethane (TCA)	1.94	0.100	2.000	0	97.0	67.9	134				
1,1-Dichloropropene	1.97	0.100	2.000	0	98.3	72.1	133				
Carbon tetrachloride	1.95	0.100	2.000	0	97.7	64.4	133				
1,2-Dichloroethane (EDC)	1.83	0.100	2.000	0	91.4	65.8	126				
Benzene	1.87	0.100	2.000	0	93.7	67.1	132				
Trichloroethene (TCE)	1.89	0.0500	2.000	0	94.7	71.9	130				
1,2-Dichloropropane	1.86	0.100	2.000	0	92.9	71.9	131				
Bromodichloromethane	1.96	0.100	2.000	0	98.2	70	130				
Dibromomethane	1.89	0.100	2.000	0	94.4	74.2	125				
cis-1,3-Dichloropropene	1.97	0.100	2.000	0	98.6	62.8	135				
Toluene	1.89	0.100	2.000	0	94.6	73.6	127				
trans-1,3-Dichloropropylene	1.97	0.100	2.000	0	98.6	58.1	138				
1,1,2-Trichloroethane	1.85	0.100	2.000	0	92.5	65.4	128				
1,3-Dichloropropane	1.89	0.100	2.000	0	94.5	71.9	131				
Tetrachloroethene (PCE)	2.01	0.100	2.000	0	100	52.4	140				
Dibromochloromethane	1.91	0.100	2.000	0	95.5	68.7	139				
1,2-Dibromoethane (EDB)	1.89	0.0250	2.000	0	94.3	71.2	129				

Work Order: 1802282
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19935** SampType: **LCS** Units: **µg/L** Prep Date: **2/28/2018** RunNo: **42008**
Client ID: **LCSW** Batch ID: **19935** Analysis Date: **2/28/2018** SeqNo: **810143**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.88	0.100	2.000	0	94.2	77.2	122				
1,1,1,2-Tetrachloroethane	1.92	0.100	2.000	0	96.2	76.2	130				
Ethylbenzene	1.90	0.100	2.000	0	95.0	78	127				
m,p-Xylene	3.80	0.100	4.000	0	95.0	77.5	130				
o-Xylene	1.89	0.100	2.000	0	94.5	77.6	126				
Styrene	1.85	0.100	2.000	0	92.5	66.8	137				
Isopropylbenzene	1.95	0.100	2.000	0	97.7	75.9	133				
Bromoform	2.17	0.100	2.000	0	108	54.1	146				
1,1,2,2-Tetrachloroethane	1.85	0.100	2.000	0	92.3	68	134				
n-Propylbenzene	1.87	0.100	2.000	0	93.7	77.1	133				
Bromobenzene	1.90	0.100	2.000	0	94.8	71.1	131				
1,3,5-Trimethylbenzene	1.94	0.100	2.000	0	97.0	76.2	133				
2-Chlorotoluene	1.76	0.100	2.000	0	88.1	67.1	137				
4-Chlorotoluene	1.82	0.100	2.000	0	91.0	70.7	132				
tert-Butylbenzene	1.90	0.100	2.000	0	95.0	71.3	139				
1,2,3-Trichloropropane	1.94	0.100	2.000	0	97.2	70.8	132				
1,2,4-Trichlorobenzene	2.00	0.200	2.000	0	100	61.4	139				
sec-Butylbenzene	1.95	0.100	2.000	0	97.4	77.4	136				
4-Isopropyltoluene	2.00	0.100	2.000	0	99.8	78.1	131				
1,3-Dichlorobenzene	1.93	0.100	2.000	0	96.5	73.5	125				
1,4-Dichlorobenzene	1.99	0.100	2.000	0	99.6	71.4	125				
n-Butylbenzene	2.07	0.100	2.000	0	104	69.8	138				
1,2-Dichlorobenzene	1.97	0.100	2.000	0	98.6	74.2	123				
1,2-Dibromo-3-chloropropane	2.02	0.100	2.000	0	101	53.6	155				
1,2,4-Trimethylbenzene	1.97	0.100	2.000	0	98.3	72.3	133				
Hexachlorobutadiene	2.15	0.400	2.000	0	107	60.9	141				
Naphthalene	1.84	0.100	2.000	0	91.8	58.2	140				
1,2,3-Trichlorobenzene	1.89	0.400	2.000	0	94.5	61.3	133				
Surr: Dibromofluoromethane	2.75		2.500		110	56.4	141				
Surr: Toluene-d8	2.55		2.500		102	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.59		2.500		104	64.7	128				

Work Order: 1802282
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19935**	SampType: **LCS**			Units: **µg/L**		Prep Date: **2/28/2018**		RunNo: **42008**			
Client ID: **LCSW**	Batch ID: **19935**					Analysis Date: **2/28/2018**		SeqNo: **810143**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample ID **MB-19935**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **2/28/2018**		RunNo: **42008**			
Client ID: **MBLKW**	Batch ID: **19935**					Analysis Date: **2/28/2018**		SeqNo: **810144**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100									
Chloromethane	ND	0.100									
Vinyl chloride	ND	0.0200									
Bromomethane	ND	0.100									
Trichlorofluoromethane (CFC-11)	ND	0.100									
Chloroethane	ND	0.100									
1,1-Dichloroethene	ND	0.100									
Methylene chloride	ND	0.100									
trans-1,2-Dichloroethene	ND	0.100									
Methyl tert-butyl ether (MTBE)	ND	0.100									
1,1-Dichloroethane	ND	0.100									
2,2-Dichloropropane	ND	0.200									
cis-1,2-Dichloroethene	ND	0.100									
Chloroform	ND	0.100									
1,1,1-Trichloroethane (TCA)	ND	0.100									
1,1-Dichloropropene	ND	0.100									
Carbon tetrachloride	ND	0.100									
1,2-Dichloroethane (EDC)	ND	0.100									
Benzene	ND	0.100									
Trichloroethene (TCE)	ND	0.0500									
1,2-Dichloropropane	ND	0.100									
Bromodichloromethane	ND	0.100									
Dibromomethane	ND	0.100									
cis-1,3-Dichloropropene	ND	0.100									

Work Order: 1802282
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19935** SampType: **MBLK** Units: **µg/L** Prep Date: **2/28/2018** RunNo: **42008**
Client ID: **MBLKW** Batch ID: **19935** Analysis Date: **2/28/2018** SeqNo: **810144**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.100									
trans-1,3-Dichloropropylene	ND	0.100									
1,1,2-Trichloroethane	ND	0.100									
1,3-Dichloropropane	ND	0.100									
Tetrachloroethene (PCE)	ND	0.100									
Dibromochloromethane	ND	0.100									
1,2-Dibromoethane (EDB)	ND	0.0250									
Chlorobenzene	ND	0.100									
1,1,1,2-Tetrachloroethane	ND	0.100									
Ethylbenzene	ND	0.100									
m,p-Xylene	ND	0.100									
o-Xylene	ND	0.100									
Styrene	ND	0.100									
Isopropylbenzene	ND	0.100									
Bromoform	ND	0.100									
1,1,2,2-Tetrachloroethane	ND	0.100									
n-Propylbenzene	ND	0.100									
Bromobenzene	ND	0.100									
1,3,5-Trimethylbenzene	ND	0.100									
2-Chlorotoluene	ND	0.100									
4-Chlorotoluene	ND	0.100									
tert-Butylbenzene	ND	0.100									
1,2,3-Trichloropropane	ND	0.100									
1,2,4-Trichlorobenzene	ND	0.200									
sec-Butylbenzene	ND	0.100									
4-Isopropyltoluene	ND	0.100									
1,3-Dichlorobenzene	ND	0.100									
1,4-Dichlorobenzene	ND	0.100									
n-Butylbenzene	ND	0.100									
1,2-Dichlorobenzene	ND	0.100									
1,2-Dibromo-3-chloropropane	ND	0.100									

Work Order: 1802282
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19935** SampType: **MBLK** Units: **µg/L** Prep Date: **2/28/2018** RunNo: **42008**
Client ID: **MBLKW** Batch ID: **19935** Analysis Date: **2/28/2018** SeqNo: **810144**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.100									
Hexachlorobutadiene	ND	0.400									
Naphthalene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.400									
Surr: Dibromofluoromethane	2.52		2.500		101	56.4	141				
Surr: Toluene-d8	2.51		2.500		101	66	138				
Surr: 1-Bromo-4-fluorobenzene-BFB	2.59		2.500		104	64.7	128				

Sample ID **1802282-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **2/28/2018** RunNo: **42008**
Client ID: **S2-EFF-0226** Batch ID: **19935** Analysis Date: **2/28/2018** SeqNo: **810135**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	

Work Order: 1802282
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1802282-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **2/28/2018** RunNo: **42008**
Client ID: **S2-EFF-0226** Batch ID: **19935** Analysis Date: **2/28/2018** SeqNo: **810135**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	0.826	0.0500						0.8180	0.945	30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	

Work Order: 1802282
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1802282-001AREP** SampType: **REP** Units: **µg/L** Prep Date: **2/28/2018** RunNo: **42008**
Client ID: **S2-EFF-0226** Batch ID: **19935** Analysis Date: **2/28/2018** SeqNo: **810135**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.53		2.500		101	61.1	128		0		
Surr: Toluene-d8	2.52		2.500		101	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.62		2.500		105	64.7	128		0		

Sample ID **1802300-004AREP** SampType: **REP** Units: **µg/L** Prep Date: **2/28/2018** RunNo: **42008**
Client ID: **BATCH** Batch ID: **19935** Analysis Date: **2/28/2018** SeqNo: **810140**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.100						0		30	
Chloromethane	ND	0.100						0		30	
Vinyl chloride	ND	0.0200						0		30	
Bromomethane	ND	0.100						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.100						0		30	
Chloroethane	ND	0.100						0		30	
1,1-Dichloroethene	ND	0.100						0		30	
Methylene chloride	ND	0.100						0		30	
trans-1,2-Dichloroethene	ND	0.100						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.100						0		30	
1,1-Dichloroethane	ND	0.100						0		30	
2,2-Dichloropropane	ND	0.200						0		30	

Work Order: 1802282
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1802300-004AREP** SampType: **REP** Units: **µg/L** Prep Date: **2/28/2018** RunNo: **42008**
Client ID: **BATCH** Batch ID: **19935** Analysis Date: **2/28/2018** SeqNo: **810140**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,2-Dichloroethene	ND	0.100						0		30	
Chloroform	ND	0.100						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.100						0		30	
1,1-Dichloropropene	ND	0.100						0		30	
Carbon tetrachloride	ND	0.100						0		30	
1,2-Dichloroethane (EDC)	ND	0.100						0		30	
Benzene	ND	0.100						0		30	
Trichloroethene (TCE)	ND	0.0500						0		30	
1,2-Dichloropropane	ND	0.100						0		30	
Bromodichloromethane	ND	0.100						0		30	
Dibromomethane	ND	0.100						0		30	
cis-1,3-Dichloropropene	ND	0.100						0		30	
Toluene	ND	0.100						0		30	
trans-1,3-Dichloropropylene	ND	0.100						0		30	
1,1,2-Trichloroethane	ND	0.100						0		30	
1,3-Dichloropropane	ND	0.100						0		30	
Tetrachloroethene (PCE)	ND	0.100						0		30	
Dibromochloromethane	ND	0.100						0		30	
1,2-Dibromoethane (EDB)	ND	0.0250						0		30	
Chlorobenzene	ND	0.100						0		30	
1,1,1,2-Tetrachloroethane	ND	0.100						0		30	
Ethylbenzene	ND	0.100						0		30	
m,p-Xylene	ND	0.100						0		30	
o-Xylene	ND	0.100						0		30	
Styrene	ND	0.100						0		30	
Isopropylbenzene	ND	0.100						0		30	
Bromoform	ND	0.100						0		30	
1,1,2,2-Tetrachloroethane	ND	0.100						0		30	
n-Propylbenzene	ND	0.100						0		30	
Bromobenzene	ND	0.100						0		30	
1,3,5-Trimethylbenzene	ND	0.100						0		30	

Work Order: 1802282
CLIENT: Environmental Partners, Inc.
Project: WA Industries

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1802300-004AREP** SampType: **REP** Units: **µg/L** Prep Date: **2/28/2018** RunNo: **42008**
Client ID: **BATCH** Batch ID: **19935** Analysis Date: **2/28/2018** SeqNo: **810140**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorotoluene	ND	0.100						0		30	
4-Chlorotoluene	ND	0.100						0		30	
tert-Butylbenzene	ND	0.100						0		30	
1,2,3-Trichloropropane	ND	0.100						0		30	
1,2,4-Trichlorobenzene	ND	0.200						0		30	
sec-Butylbenzene	ND	0.100						0		30	
4-Isopropyltoluene	ND	0.100						0		30	
1,3-Dichlorobenzene	ND	0.100						0		30	
1,4-Dichlorobenzene	ND	0.100						0		30	
n-Butylbenzene	ND	0.100						0		30	
1,2-Dichlorobenzene	ND	0.100						0		30	
1,2-Dibromo-3-chloropropane	ND	0.100						0		30	
1,2,4-Trimethylbenzene	ND	0.100						0		30	
Hexachlorobutadiene	ND	0.400						0		30	
Naphthalene	ND	0.100						0		30	
1,2,3-Trichlorobenzene	ND	0.400						0		30	
Surr: Dibromofluoromethane	2.45		2.500		97.9	61.1	128		0		
Surr: Toluene-d8	2.52		2.500		101	68.2	129		0		
Surr: 1-Bromo-4-fluorobenzene-BFB	2.62		2.500		105	64.7	128		0		

Sample Log-In Check List

Client Name:	**EPI**	Work Order Number:	**1802282**
Logged by:	**Clare Griggs**	Date Received:	**2/26/2018 1:20:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Courier		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Air Samples		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 2/26/18 Page: 1 of: 1

Laboratory Project No (Internal): 1802282

Project Name: WA Industries

Special Remarks: Provide EDD table

Client: EPT

Project No: 6400.6

Address: 1180 NW Maple St

Location: 825 S. Dakota St. Seattle, WA

City, State, Zip: Issaquah, WA 98027

Collected by: J. Sherrod

Telephone: 425-395-0060

Reports to (PM): Sean Trimble

Fax:

Email (PM): seant@epi-wa.com

Sample Name	Canister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal: Initial Evacuation Pressure (mtorr)	Field Initial Sample Pressure (" Hg)	Field Final Sample Pressure (" Hg)	Analysis Requested	Internal: Receipt Date	Internal: Final Pressure ("Hg)
1 SG-EFF-0226	Canister / Flow Reg	2/26/18 Date 0747 Time	S	TB	1L	.5 min		Pressure Date	Pressure Time	Pressure Time	VOCs by EPA method 8260c		
2	Canister / Flow Reg	Date Time						Pressure Date	Pressure Time	Pressure Time			
3	Canister / Flow Reg	Date Time						Pressure Date	Pressure Time	Pressure Time			
4	Canister / Flow Reg	Date Time						Pressure Date	Pressure Time	Pressure Time			
5	Canister / Flow Reg	Date Time						Pressure Date	Pressure Time	Pressure Time			

* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

** Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	2/26/18 12:27	x	
x	2/26/18 12:27	x	2/26/18 1320

Turn-Around Time:

- [x] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day _____ (specify)

Attachment G
SVE System O&M Field Sheet

Date:	**Ambient Temperature:**	°F	2.067	= **D** (pipe diameter)	2"=	0.02	Area ft2
Time:	**Barometric Pressure:**	"Hg	0.67	= **K** (flow coefficient)	3"=	0.05	Area ft2
Staff:			1	= **Sg** (specific gravity)	4"=	0.09	Area ft2

Hot-Wire anemometer: Flow = Velocity X Area

Well	Well Temp at the Manifold (°F)	Well Vacuum at the Manifold (In. H_2O)	Velocity (ft/min)	Well Flow (scfm)	Well PID at the Manifold (ppm)	VOC Samp. Collected?
VE-1				0		
VE-2				0		
VE-3				0		
VE-4				0		
VE-5				0		
VE-6				0		
VE-7				0		
			scfm	**0**	Total Summed Well Flow	

Location	Temp at the Location (°F)	Vacuum at the Location (In. H_2O)	Velocity (ft/min)	Total Undiluted Flow (scfm)	PID at the Location (ppm)	VOC Samp. Collected?
SVE-TOT						

3.07 = **D** (pipe diameter)

14.70

Location	Temp at the Location (°F)	Pressure at the Location (In. H_2O)	Velocity (ft/min)	Total Diluted Flow (scfm)	PID at the Location (ppm)	VOC Samp. Collected?	Calculated Dilution Flow (scfm)
AIR-INF							0

3.97

14.70

Location	Pressure at the Location (In. H2O)	PID at the Location (ppm)	VOC Samp. Collected?	Location	Pressure at the Location (In. H2O)	PID at the Location (ppm)	VOC Samp. Collected?
AIR-MID				**AIR-EFF**			