

Revised Remedial Investigation, Feasibility Study, and Cleanup Action Plan

**Meeker Former Gas Station Site
105 Washington Avenue N
Kent, Washington**

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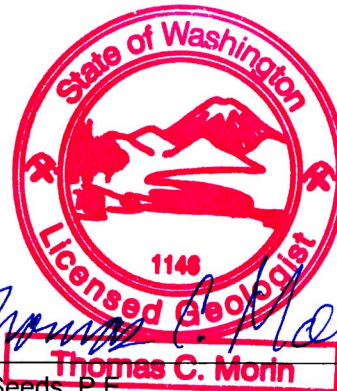
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ABBREVIATIONS AND ACRONYMS

Abbreviation/ Acronym	Definition
AEC	Anderson Environmental Contracting, LLC
ARARs	Applicable or Relevant and Appropriate Requirements
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CAP	Cleanup Action Plan
COC	Constituent of concern
COPC	Constituent of potential concern
CSM	Conceptual site model
CUL	Cleanup level
DCA	Disproportionate cost analysis
DRO	Diesel-range organics
EC	Environmental Covenant
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
EPI	Environmental Partners, Inc.
F&BI	Friedman & Bruya, Inc.
FS	Feasibility Study
GRO	Gasoline-range organics
HASP	Health and Safety Plan
µg/L	Micrograms per liter
mg/kg	Milligrams per kilogram
MNA	Monitored natural attenuation
MSL	Mean sea level
MTCA	Model Toxics Control Act
NAVD88	North American Vertical Datum of 1988
ORC	Oxygen-release compound
ORO	Oil-range organics
PCS	Petroleum-contaminated soil
PID	Photo-ionization detector
RAO	Remedial action objective
RI	Remedial investigation
RI/FS/CAP	Remedial Investigation, Feasibility Study, and Cleanup Action Plan
RTF	Restoration time frame
SAP	Sampling and Analysis Plan
SCS	SCS Engineers
SVE	Soil vapor extraction
TEE	Terrestrial Ecological Evaluation
UST	Underground storage tank
VCP	Voluntary Cleanup Program
VI	Vapor intrusion

1.0 INTRODUCTION

Environmental Partners, Inc. (EPI) is pleased to submit this *Revised Remedial Investigation, Feasibility Study, and Cleanup Action Plan* (Revised RI/FS/CAP) for the Former Meeker Gas Station Site located at 105 Washington Avenue North in Kent, Washington (subject property). The subject property is currently owned by MJR Development (MJR). The general location of the subject property is indicated on Figure 1.

This Revised RI/FS/CAP, which supersedes the previous RI/FS/CAP dated September 1, 2017, has been prepared in accordance with the Washington Model Toxics Control Act (Chapter 70.105D RCW) and its implementing regulations (Chapter 173-340 WAC), collectively referred to as “MTCA.” For the purpose of this document, and as defined in MTCA, the “Site” shall mean all areas where contaminants released from the former gas station facility have come to be located.

Limited residual petroleum hydrocarbons impacts are present at the Site in soil and groundwater along the southern property boundary and off-property to the south beneath the Meeker Street right-of-way. Petroleum-impacted soil and groundwater are primarily present in the vicinity of buried utilities running south-adjacent to the property line. The impacted groundwater extends to the south beneath Meeker Street, but not beyond the southern boundary of the street. Both soil and groundwater contain gasoline-range organics (GRO) and one or more related compounds of benzene, toluene, ethylbenzene, and total xylenes (BTEX).

The Site is listed in the Washington State Department of Ecology (Ecology) facility/site database as Facility/Site ID No. 44681713. Concurrent with submittal of the previous RI/FS/CAP, the Site was enrolled in Ecology’s Voluntary Cleanup Program (VCP) and assigned VCP Site No. NW3167. Ms. Jing Song is the Ecology project manager for this Site.

Ms. Song issued an advisory opinion letter dated September 7, 2018 (Ecology 2018) regarding the previous RI/FS/CAP and provided comments indicating that characterization of the Site was not sufficient to establish cleanup standards and select a cleanup action. Subsequently, representatives of EPI and MJR met with Ms. Song and Mr. Mike Warfel of Ecology on November 15, 2018 to discuss the comments and clarify appropriate responses to those comments. Following that discussion, EPI submitted a technical memorandum dated February 12, 2019 (EPI 2019) presenting written responses to Ecology’s comments as agreed upon in the November 15 meeting. Based on the responses, additional investigation and data evaluation activities were performed to complete the characterization of the Site to Ecology’s satisfaction. The results of those additional activities have been incorporated into this Revised RI/FS/CAP.

This Revised RI/FS/CAP summarizes the results of environmental investigations and actions conducted at the subject property, evaluates cleanup alternatives for the affected portion of the Site, selects a cleanup action that meets the requirements of MTCA and is protective of human health and the environment, and presents a plan for the selected cleanup action. The selected cleanup action will be implemented as an independent remedial action in accordance with the requirements of MTCA.

1.1 Report Organization

The remaining portion of this Revised RI/FS/CAP is organized as follows:

- **Section 2.0** presents a description of the subject property and current and historical uses of the subject property.
- **Section 3.0** presents the remedial investigation (RI) for the Site.
- **Section 4.0** presents the Feasibility Study (FS) for the Site.
- **Section 5.0** presents the Cleanup Action Plan (CAP) for the portion of the Site on the subject property.
- **Section 6.0** presents EPI's standard limitations.
- **Section 7.0** presents the list of references and source materials used in preparing this Revised RI/FS/CAP.

2.0 DESCRIPTION AND USE OF SUBJECT PROPERTY

2.1 Description of Subject Property

The subject property is located at the southeast corner of the Meeker Square shopping center within a commercially zoned area of Kent, Washington. Washington Avenue North runs adjacent to the subject property to the east and West Meeker Street runs adjacent to the subject property to the south. The Meeker Square shopping center includes a departmental store (Big Lots), a pharmacy (Rite Aid), dry cleaners (Meeker Cleaners), restaurants (Ichi Teriyaki and Jimmy Johns), and the Washington Department of Social Health and Welfare (DSHS), and is surrounded by a commercial parking lot. The Rite Aid pharmacy and associated parking currently occupies the subject property portion of the shopping center. A depiction of the subject property is provided on Figure 2.

The subject property comprises approximately 0.4 acre on the eastern portion of King County Parcel No. 5436200526 and is located at an elevation of about 40 feet above mean sea level. The ground surface is relatively flat with a slight topographic gradient to the south-southeast.

2.2 Historical Use of Subject Property

EPI's understanding of historical uses of the subject property is based on information presented in a soil remediation report prepared by SCS Engineers, dated July 2002 (SCS 2002). According to the SCS report, a grocery store historically occupied the subject property from 1928 until it burned down in September 1960. Standard Oil (Chevron) purchased the property and constructed a gasoline service station in 1960 and 1961. The former gas station reportedly included two fuel island canopies, a station building, and underground storage tanks (USTs) that had contained gasoline. The SCS report indicated that the former gas station may have also stored waste oil. However, the purported presence of a former

waste oil UST by SCS appears to be based on anecdotal evidence and its presence and previous location on the subject property cannot be confirmed based on the documents reviewed. Information was not available regarding the number of USTs that were present on the property nor their storage capacity. The approximate locations of the historical gas station structures, based on a review of historical aerial photographs, are illustrated on Figure 2.

EPI understands that the gas station operated from 1961 until 1983, at which time the USTs were removed and the station building was demolished. Following removal of the gas station, the subject property was primarily used for parking associated with the Meeker Square shopping center.

According to tax records, the Meeker Square shopping center was originally constructed on the surrounding property in 1966, with an addition constructed in 1983. The current building that is occupied by Rite Aid on the subject property was built in 2007.

3.0 REMEDIAL INVESTIGATION

This section describes the results of the RI for the subject property. Multiple environmental investigations have been conducted at the subject property since 1991. A soil removal action was also performed at the subject property in 2002. The investigations have assessed the condition of soil and groundwater under and adjacent to the subject property and characterized the sources, nature, and extent of hazardous substances. The results of these investigations together constitute the RI for the subject property.

3.1 Constituents of Potential Concern

Constituents of potential concern (COPCs) evaluated in soil and groundwater during the RI were selected based on known historical uses of subject property and the sampling requirements for petroleum-contaminated sites. The COPCs evaluated in soil and groundwater at the subject property are:

- GRO;
- Diesel-range organics (DRO);
- ORO; and
- BTEX compounds.

3.2 Affected Media

Based on geological and hydrogeological conditions and current and future land uses at the subject property, the media of potential concern evaluated during the RI were soil and groundwater. Indoor air and surface water are not media of concern at the subject property for the following reasons:

- No buildings were present on the subject property during most of the RI activities;

- The current Rite Aid building was constructed following removal of contamination within the property boundary;
- Residual soil and groundwater concentrations remaining after the 2002 soil removal action do not pose a potential threat to indoor air quality;
- No surface water bodies are present on or near the subject property; and
- A pathway of contaminated groundwater migration to surface water does not exist.

3.3 Summary of Previous Environmental Investigations and Actions

This section presents the summary results of previously documented Site investigation and remedial excavation activities that were conducted between 1991 and 2015. A brief review of these investigations and remedial actions is presented below. Sampling locations from the prior investigations and remedial activities are shown on Figures 3 through 6. Soil and groundwater analytical data from the investigation and remedial activities are summarized in Tables 1 and 2, respectively, and copies of the analytical laboratory reports are provided in Attachment A.

3.3.1 Environmental Site Assessments – SCS Engineers (1991)

According to the July 2002 SCS report cited above in Section 2.2, SCS conducted Phase I and Phase II Environmental Site Assessments (ESAs) of the subject property in 1991. The Phase I ESA identified the former Chevron gas station as having operated on the subject property. Consequently, SCS performed a Phase II ESA in the location of the former gas station to determine if the property had been impacted by the former gas station. The assessment included advancement of four soil borings (BH1 through BH4) in the vicinity of the former USTs, and collection and analysis of soil samples from the borings. The analytical results indicated the presence of detectable petroleum hydrocarbons at a depth of 5 feet from boring BH2 and at depths of 10 and 15 feet from boring BH4. The 5-foot sample from BH2 contained the highest concentration of petroleum hydrocarbons, which was detected at 1,800 milligrams per kilogram (mg/kg) and was reportedly identified as diesel. The 10-foot and 15-foot samples from BH-4 contained petroleum hydrocarbons at concentrations of 47 and 44 mg/kg, respectively. The boring locations are shown on Figure 3 and soil sample analytical results are summarized in Table 1. Boring logs for SCS borings BH1 through BH4 were not included in any of the reports that were provided to EPI for review and were not contained in the Ecology records.

3.3.2 Phase II ESA – Giles Engineering Associates (1998)

The July 2002 SCS report indicates that Giles Engineering Associates (Giles) conducted a Phase II ESA at the subject property in 1998 to further investigate petroleum hydrocarbons in the vicinity of the former gas station. The assessment included advancement of 13 soil borings (B1 through B13), installation of monitoring wells at four of the borings (MW1 through MW4), and collection of soil and groundwater samples for laboratory analysis. The results indicated the presence of GRO in all the soil and groundwater samples, and one or more BTEX compounds in four of the soil samples and five of the groundwater samples. GRO in soil ranged from 6 mg/kg to 700 mg/kg. GRO in groundwater ranged from 83

micrograms per liter ($\mu\text{g/L}$) to 4,800 $\mu\text{g/L}$. The highest concentrations of contaminants were detected at the southeast corner of the property from B4, B8/MW2, and B9. The soil borings and well locations are included on Figure 3. Soil sample analytical results are included in Table 1 and groundwater analytical results are summarized in Table 2. Boring logs for B1 through B13 were not included in any of the reports that were provided to EPI for review. However, driller's logs for MW1 through MW4 were identified during a search of Ecology's well records. Copies of the driller's logs are provided in Attachment B.

3.3.3 Supplemental Assessment – SCS Engineers (April 2000)

Supplemental assessment activities were reportedly conducted by SCS in April 2000 (SCS 2002) that included direct-push soil and groundwater sampling from one location (DP13) at the southern edge of the former gas station property (Figure 3), surveying the elevations of the monitoring wells installed by Giles in 1998, and measuring relative groundwater elevations to determine the direction of flow. Laboratory analysis of the soil and groundwater samples collected from DP13 indicated the presence of GRO and BTEX compounds. GRO and benzene were both detected at elevated levels in the groundwater sample, with GRO at 9,000 $\mu\text{g/L}$ and benzene at 330 $\mu\text{g/L}$. The groundwater flow direction was reportedly to the south. The soil and groundwater analytical results are included in Tables 1 and 2, respectively. The boring log for DP13 was not included in any of the reports that were provided to EPI for review and was not contained in the Ecology records.

3.3.4 Supplemental Assessment – SCS Engineers (January 2002)

In 2001 and 2002, the City of Kent widened the two streets that run adjacent to the subject property and installed underground utilities beneath the new sidewalk and roads. During those activities, monitoring well MW4 was decommissioned. A copy of the well decommissioning log, which was identified during a search of Ecology's well records, is included in Attachment B.

Following the road and utilities work, SCS performed an additional assessment at the subject property to obtain additional data to further define the nature and extent of petroleum impacts in soil and groundwater at the Site. The assessment included collection of groundwater samples from the three remaining wells (MW1 through MW3) and direct-push soil and groundwater sampling from six additional locations (SP1 through SP6) located within and at the downgradient edge of the subject property (Figure 3). The sampling results (included in Tables 1 and 2) were generally consistent with previously obtained data, indicating the presence of GRO and one or more BTEX compounds detected in soil and groundwater. Boring logs for SP1 through SP6 were not included in any of the reports that were provided to EPI for review. However, driller's logs, including decommissioning logs, for the six borings were identified during a search of Ecology's records. Copies of the driller's logs are included in Attachment B.

3.3.5 Remedial Excavation – SCS Engineers (April 2002)

In April 2002, SCS conducted a remedial excavation to remove petroleum-impacted soil from the former gas station property. Monitoring wells MW1 and MW2 were decommissioned prior to the excavation activities to allow for soil removal in the area of those wells. Copies of the well decommissioning logs, which were identified during a search of Ecology's well records, are included in Attachment B.

Soil excavation extended to an approximate depth of 7 to 8 feet below ground surface (bgs). A total of approximately 342 tons of petroleum-contaminated soil (PCS) was excavated and transported offsite for disposal. Confirmation samples from the base and sidewalls of the excavation indicated that petroleum compounds remained in saturated soil at the central floor of the excavation and in very limited extent within shallow soil along the southern property boundary where utility and property lines prevented further excavation. The confirmation soil data are included in Table 1. The final excavation boundary and confirmation sampling locations are shown on Figure 4. To facilitate biological degradation of remaining contaminants in saturated soil, oxygen-release compound (ORC) was mixed into the saturated soil at the base of the excavation. Details and results of the excavation activities were documented in the July 2002 SCS report (SCS 2002).

3.3.6 Soil & Groundwater Assessment – SCS Engineers (May/June 2002)

Following the remedial excavation, SCS installed three new wells at the Site (OW1, OW2, and OW3) in May 2002. Well OW1 was installed at the west end of the excavated area and wells OW2 and OW3 were installed as near as possible to the south edge of the property. The well locations are shown on Figure 5. Laboratory analysis of soil samples collected from each of the well borings indicated detectable GRO and BTEX compounds at depths of 5 and 10 feet bgs from OW3. Following well installation and development, groundwater samples were collected in June 2002 from each of the new wells and from one of the previously installed wells on the subject property (MW3). Laboratory analysis of the groundwater samples indicated only detectable concentrations of GRO and BTEX compounds at OW3. GRO and benzene were both detected at elevated levels in the sample from OW3, with GRO at 4,550 µg/L and benzene at 125 µg/L. Based on wellhead surveying and groundwater elevation measurements, groundwater was observed to flow in a south-southeasterly direction. The soil and groundwater analytical data are summarized in Tables 1 and 2, respectively. Groundwater elevations for the wells are summarized in Table 3 and are included on Figure 5. Additional details of the assessment were documented in a letter report prepared by SCS, dated January 10, 2003 (SCS 2003a). The well logs for OW1 through OW3 were not included in any of the reports that were provided to EPI for review, and were not contained in Ecology's well records.

3.3.7 Groundwater Monitoring – SCS Engineers (September 2002—March 2005)

SCS performed subsequent quarterly groundwater monitoring events at the Site from September 2002 through March 2004, and an annual monitoring event in March 2005. The activities included measuring groundwater elevations in the four wells that existed at that time (OW1, OW2, OW3 and MW3) and collecting groundwater samples from each well for laboratory analysis. All of the samples were analyzed for GRO and BTEX compounds during each event. Neither GRO nor benzene were detected in wells OW1, OW2 or MW3 during any of those sampling events. The monitoring data indicated that GRO and BTEX compounds were detected in the samples collected from OW3. At that time GRO concentrations at OW3 ranged from 1,790 µg/L to 5,030 µg/L and benzene concentrations ranged from 58 µg/L to 179 µg/L. The groundwater analytical data for those sampling events are summarized in Table 2.

Depth-to-water measurements reportedly ranged from 7.72 to 11.67 feet below the top of the well casing, which corresponded to relative groundwater elevations ranging from 88.50 to 91.60 feet. Based on the elevation measurements, groundwater was generally observed to flow in an easterly to southeasterly

direction, at gradients ranging from approximately 0.002 to 0.02 feet per foot (ft/ft). Relative groundwater elevation measurements are included in Table 3 and interpolated contours for each event are illustrated on Figure 5. Additional details of the groundwater monitoring activities were documented in quarterly and annual groundwater monitoring reports prepared by SCS between January 2003 and June 2005 (SCS 2003b, 2003c, 2003d, 2003e, 2004a, 2005).

3.3.8 Groundwater Sampling – Migizi Group (August 2014)

Migizi Group, Inc. (Migizi) performed groundwater monitoring at the Site in August 2014 as part of an assessment of the Meeker Square shopping center property. The assessment included monitoring of previously-installed wells located on both the former gas station property and the adjacent Former Meeker Cleaners property. Well monitoring activities consisted of locating and surveying existing wells, measuring groundwater depths, and collecting groundwater samples from accessible wells using low-flow purging techniques. Migizi was not able to locate MW3 on the subject property, so groundwater samples were collected from OW1, OW2, and OW3. Laboratory analysis of the samples indicated detectable concentrations of GRO at 2,450 µg/L, benzene at 14.9 µg/L, ethylbenzene at 6.10 µg/L, and xylenes at 1.39 µg/L in OW3. No COPCs were detected in the samples from OW1 and OW2. The analytical results are included in Table 2. Additional details of the groundwater monitoring activities were documented in a memorandum prepared by Migizi, dated September 8, 2014 (Migizi 2014).

3.3.9 Site Investigation – EPI (November 2015)

EPI conducted a subsurface investigation at the Meeker Square shopping center in October and November 2015 as part of a pre-purchase due diligence. The investigation activities were performed in the area of the subject property, as well as the adjacent Former Meeker Cleaners property and in two areas to the north (current Meeker Cleaners drop-off facility and an auto repair facility).

Soil and groundwater samples were collected from three direct-push boring locations (B-7, B-9, and B-10) in the vicinity of the former gas station during the investigation. Borings B-7 and B-9 were advanced on the subject property and boring B-10 was advanced within the roadway south of the subject property. It should be noted that due to extensive utilities within the roadway, B-10 was advanced as near as possible to the intersection. Due to existing infrastructure, it is not possible to advance borings any closer to the middle of the intersection or beyond. The sampling locations are shown on Figure 6 and copies of the bore logs are presented in Attachment B.

Laboratory analysis indicated that no COPCs were detected at concentrations greater than the method reporting limits in any of the soil samples nor in the groundwater samples collected from B-7 and B-9. The groundwater sample from B-10 exhibited detectable concentrations of GRO and BTEX compounds that were slightly greater than the method reporting limits, but were below the MTCA Method A Cleanup Levels for Groundwater. The soil and groundwater analytical data are included in Tables 1 and 2, respectively. Additional details of the investigation were documented in a Technical Memorandum prepared by EPI, dated February 25, 2016 (EPI 2016).

3.4 Supplemental Site Investigation – EPI (October 2018 and June 2019)

In response to Ecology's comments (Ecology 2018), EPI performed a supplemental investigation at the Site in October 2018 and June 2019. The work performed in October 2018 included collecting and analyzing a groundwater sample from monitoring well OW3 to assess current petroleum hydrocarbon concentrations. The activities performed in June 2019 consisted of soil and groundwater sampling from three direct-push borings (DPT-1, DPT-2, and DPT-3), sampling groundwater from OW1 through OW3, surveying wellhead elevations at existing and temporary wells, and measuring groundwater elevations at OW1 through OW3 and DPT-1 through DPT-3.

Boring DPT-1 was installed near the 2002 remedial excavation sampling location C3-8' to assess current conditions. This is a location where inaccessible petroleum impacts had previously been left in place at the bottom of the excavation but were treated with Oxygen-Release Compound (ORC) to facilitate *in situ* biological degradation. Borings DPT-2 and DPT-3 were installed near previous sampling locations SP4 and SP5 to assess current conditions to the south and southeast beyond the subject property boundary. These borings were intended to assess potential off-property impacts to soil that may extend from C3-8' and potential impact to groundwater in the hydraulically downgradient direction. The boring locations are shown on Figure 6.

As discussed with Ecology in the November 2018 meeting, Site characterization to the east of the subject property is not possible due to the presence of multiple buried utilities located within the adjacent sidewalk and street, including traffic loops that are buried under several layers of pavement and cannot be accurately located. These utilities, along with heavy traffic within Washington Avenue North (State Route 181), present significant health and safety risks for drilling and sampling activities within the right-of-way to the east. Additionally, even if those issues could be resolved, it is unclear whether the Washington Department of Transportation would actually allow temporary or partial closure of State Route 181 for additional non-critical assessment activities.

It is EPI's opinion that the actions taken were fully responsive to the concerns and requests contained within Ecology's comments. Those actions, and the findings of those actions are discussed in detail below in Sections 3.4.1 through 3.4.4. The conclusions supported by those findings are presented in Section 3.4.5.

3.4.1 Well Sampling – October 2018

EPI visited the subject property on October 31, 2018 to collect a groundwater sample from monitoring well OW3. Prior to sample collection, the well was purged using a peristaltic pump and tubing until field measurements of pH, conductivity, dissolved oxygen, temperature, and oxidation-reduction potential stabilized to within 10 percent of the prior measurement. Field parameter measurements were recorded on a sampling field sheet. Following purging, a groundwater sample was collected into laboratory-supplied containers using the same tubing and peristaltic pump used for purging. During sample collection the flow rate of the pump was reduced to 100 milliliters per minute to limit the potential loss of volatile constituents. The sample was placed in a chilled cooler and submitted to Friedman & Bruya, Inc. (F&BI) in Seattle, Washington under standard chain-of-custody protocol for the following analyses:

- GRO by Northwest Method NWTPH-Gx; and
- BTEX compounds by U.S. Environmental Protection Agency (EPA) Method 8021B.

The analytical results indicated detectable concentrations of GRO, benzene, ethylbenzene, and total xylenes at 1,300 µg/L, 1.1 µg/L, 4.0 µg/L, and 4.3 µg/L, respectively. Toluene was not detected in the sample. The results are included in Table 2 and a copy of the laboratory analytical report is included in Attachment A.

3.4.2 Soil Sampling and Analysis

On June 8, 2019, EPI directed Anderson Environmental Contracting, LLC (AEC) of Snohomish, Washington to advance DPT-1 through DPT-3 to a depth of approximately 15 feet bgs. Sampling locations are indicated on Figure 6.

Soil samples were obtained from each location using a closed-piston sampling device with a 48-inch long, 1.5-inch inside-diameter core sampler and disposable, single-use acetate liners. Soil cores retrieved from each liner were examined for lithologic characteristics and visible and olfactory evidence of impacts, and were field screened with a photo-ionization detector (PID). Lithologic characteristics, notable observations, and PID readings were recorded on field log for each DPT location. The bore logs are included in Attachment B.

One soil sample was collected from each boring for laboratory analysis. The samples were collected from approximate depths of 7 feet bgs (DPT-2), 7.5 feet bgs (DPT-1) and 9 feet bgs (DPT-3) to document conditions above the water table at the time of drilling but within the zone of annual water table fluctuation. Each sample was collected into laboratory-prepared containers using an EPA Method 5035A sampling device to limit the potential loss of volatile constituents. All of the samples were placed in a chilled cooler and submitted to F&BI under standard chain-of-custody protocol for analysis. The samples were analyzed for GRO and BTEX using the methods identified in Section 3.4.1.

Neither GRO nor BTEX compounds were detected in the samples from borings DPT-1 and DPT-2. GRO, toluene, ethylbenzene, and total xylenes were detected in the sample from DPT-3 at concentrations of 130 mg/kg, 0.24 mg/kg, 0.31 mg/kg, and 1.6 mg/kg, respectively. Benzene was not detected in the soil sample from DPT-3. The results are included in Table 2 and a copy of the laboratory analytical report is included in Attachment A.

3.4.3 Groundwater Elevation Assessment

Once each direct-push boring reached the target depth of 15 feet bgs and soil samples were collected, the core sampler was removed and a temporary well was installed. Each temporary well consisted of 1-inch diameter slotted screen placed from approximately 5 feet to 15 feet bgs with blank casing extending to just above the ground surface.

Following installation of the temporary wells, EPI field personnel performed a wellhead survey of DPT-1 through DPT-3 and at existing wells OW1 through OW3 using a standard level and survey rod. Historical

monitoring well MW3 could not be found for this assessment and appears to have been paved over with asphalt. The survey consisted of measuring the elevation at a designated point on the top of each well casing to the nearest 0.01 foot relative to a benchmark located approximately 180 feet west-northwest of OW1. The benchmark was a catch basin rim with a previously-surveyed elevation of 39.65 feet above mean sea level (MSL) relative to the North American Vertical Datum of 1988 (NAVD88).

Wellhead elevations measured during the survey ranged from 41.08 feet above MSL at OW1 to 42.65 feet above MSL at OW2. The survey data and a map showing the benchmark location are presented in Attachment C. Wellhead elevations are included in Table 3.

Based on the surveyed elevations, the top of the well casing at OW1 is apparently about 1.5 feet lower in elevation than it was during groundwater monitoring activities conducted between 2002 and 2005. This change likely resulted from re-grading of the subject property for construction of the Rite Aid building in 2007. Wells OW2 and OW3 do not appear to have been affected by the property redevelopment, as no change was observed in the relative difference between their elevations.

After groundwater levels stabilized in the temporary wells, water depths were measured at DPT-1 through DPT-3 and OW1 through OW3. The depth to water at each well was measured using an electronic water level meter to the nearest 0.01 foot relative to the surveyed point at the top of the well casing. This measurement was used to calculate the elevation of the groundwater table. Depth-to-water measurements ranged from 6.94 to 8.47 feet below the top of the well casing. The depths correspond to groundwater elevations ranging between 34.00 and 34.33 feet above MSL. The water level measurements and corresponding groundwater elevations are included in Table 3.

Groundwater elevations and interpolated contours and flow direction are shown on Figure 7. The elevation data as collected suggest multi-directional groundwater flow in northerly, westerly, and southerly directions at gradients ranging from approximately 0.006 ft/ft to 0.02 ft/ft. The multi-directional flow is not consistent with historical observations or EPI's experience with other sites in the general area. The groundwater flow direction at a nearby site is known to be consistently to the south-southeast, and has been so for at least the last five years. The Site data appear to be affected by anomalously high groundwater elevations measured at OW3 and DPT-3 within the southwest portion of the property.

3.4.4 Groundwater Sampling and Analysis

Following the wellhead survey and water level measurements, groundwater was purged from each of the temporary wells at DPT-1 through DPT-3 to remove fine sediment prior to sample collection. Monitoring wells OW1 through OW3 were also purged prior to sample collection. Purging was conducted using a peristaltic pump and dedicated tubing at each location and as described above in Section 3.4.1. Groundwater samples were then collected into laboratory-supplied containers and stored in the cooler for transport to the laboratory. All of the samples were analyzed for GRO and BTEX using the methods identified in Section 3.4.1.

The analytical results indicated that GRO and BTEX compounds were not detected at or above the method reporting limits in the samples from DPT-1, DPT-2, OW1, and OW2. Additionally, no BTEX compounds were detected in the sample from DPT-3.

GRO were detected in the samples from DPT-3 and OW3 at 140 µg/L and 940 µg/L, respectively. BTEX compounds were only detected in the sample from OW3, at concentrations of 1.4 µg/L, 3.1 µg/L, 1.6 µg/L, and 3.3 µg/L, respectively. Groundwater analytical results for these samples are included in Table 2 and a copy of the laboratory analytical report is included in Attachment A.

Following sample collection, each temporary well screen was removed and the probe holes were sealed with bentonite and asphalt to the ground surface.

3.4.5 Supplemental Investigation Conclusions

The findings of the supplemental investigation activities, designed to address Ecology's comments to the prior RI/FS/CAP, support the following conclusions:

- Petroleum hydrocarbon impacts have been successfully remediated in the vicinity of sample C3-8' from the 2002 remedial excavation. Boring DPT-1 was placed in close proximity to sample C3-8' and the soil and groundwater samples from that boring did not contain detectable concentrations of either GRO or BTEX compounds.
- Conditions are generally consistent with previous observations in the vicinity of historical sample location SP5. Based on the data from DPT-2, petroleum hydrocarbons have remained non-detectable in soil and are no longer detectable in groundwater.
- Petroleum hydrocarbon impacts were detected in soil in the vicinity of historical sample location SP4 where they were previously non-detectable, but have decreased significantly in groundwater. The detected concentrations in soil at DPT-3 may be representative of the smear zone where soil has come into contact with dissolved petroleum hydrocarbons. The significant decrease in groundwater concentrations in that area (i.e., GRO previously at 1,200 µg/L versus current concentration of 140 µg/L) confirm that residual impacts have strongly attenuated over time.
- Historically observed impacts to groundwater in the area of OW3 have attenuated significantly and the extent of those impacts is well characterized. Current results from OW3 indicate a GRO concentration of 940 µg/L, which is well below historical concentrations that primarily ranged between 2,450 µg/L and 5,030 µg/L in the well. The current benzene concentration of 1.4 µg/L is also well below historical concentrations in the well, which ranged from 14.9 µg/L to 179 µg/L.
- The findings suggest that natural attenuation processes have been occurring at the Site and will likely continue into the future.
- The apparent groundwater mound observed in the vicinity of OW3 and DPT-3 resulted in a calculated groundwater flow direction that is variable and wholly inconsistent with previous findings. The cause of the higher groundwater table in that area is not clear at this time but may be indicative of a leaking irrigation line within the landscaped area at the southwest corner of the property. The direction of groundwater migration at the Site is almost certainly to the south-southeast based on EPI's understanding of local and regional shallow groundwater conditions.

3.5 Geology and Hydrogeology

3.5.1 Soil

Historical reports indicate that subsurface soil conditions at the subject property generally consist of sands and silts with varying amounts of clay. Underlying the surface pavement is reportedly 1 to 2 feet of gravelly sand fill material, which is underlain by a layer of silt and sandy silt that varies in thickness from approximately 1 to 3 feet. Beneath the silt layer is approximately 2 to 3 feet of medium-grained clean brown sand. A layer of brown clayey silt and silty clay is present beneath the clean sand at a depth of approximately 6 to 8 feet bgs. Groundwater is present within the finer grained soils beneath the clean sand.

During the 2015 and 2019 investigations, poorly-graded sand was observed on the subject property from approximately 1 foot bgs to depths ranging from 6 to 9 feet bgs. Silty sand and poorly-graded sand with silt was observed beneath the shallower sand layer and extended to the maximum depth explored of 15 feet bgs. Soils beneath Meeker Street south of the subject property consist of silty sand to a depth of approximately 6 feet bgs, which is underlain by sandy silt to the maximum depth explored of 15 feet bgs. Consistent with historical findings, the deeper siltier soils became saturated at depths ranging from approximately 7 to 13 feet bgs.

Descriptions of the soil types encountered during the 2015 and 2019 field investigations are presented on the bore logs included in Attachment B.

3.5.2 Groundwater

Shallow groundwater is present at the Site at depths that have ranged between approximately 7 and 12 feet, depending on seasonal variations. During the remedial excavation in April 2002, groundwater was encountered at a depth of approximately 7 feet bgs. Historical monitoring activities performed between June 2002 and March 2005 indicated groundwater depths in the Site wells (OW1, OW2, OW3, and MW3) ranging from 7.46 to 11.67 feet below the top of the well casing. These water depths corresponded to relative water table elevations reportedly ranging from 88.50 to 91.94 feet based on the 2002 well survey data (interpolated to be 31.33 to 34.77 feet above MSL based on 2019 survey data). As illustrated on Figure 5, groundwater was generally observed to flow in an easterly to south-easterly direction at gradients ranging from approximately 0.02 to 0.002 ft/ft between 2002 and 2005.

In November 2015, groundwater was encountered in the direct-push borings on the subject property (B-7 and B-9) at depths of approximately 11 and 13 feet bgs, and in the roadway (B-10) at a depth of approximately 9 feet bgs. During drilling in June 2019, groundwater was encountered at 7.5 feet bgs at DPT-1 on the subject property and at 7 feet bgs and 9 feet bgs at DPT-2 and DPT-3, respectively, in the shoulder of the road. Groundwater levels stabilized to approximate depths of 7.81 feet, 8.31 feet, and 7.50 feet, respectively, at DPT-1 through DPT-3 following installation of the temporary wells at each location, and groundwater depths at OW1 through OW3 ranged between 6.94 feet and 8.47 feet. As noted in Section 3.4.3, groundwater elevations at the six locations ranged between 34.00 and 34.33 feet above MSL during the June 2019 investigation, which resulted in variable flow directions to the north,

west, and south (Figure 7). These flow directions are inconsistent with historical observations and appear to be due to anomalously high water table elevations measured at OW3 and DPT-3.

At Ecology's request, a rose diagram was prepared that illustrates all interpreted groundwater flow directions for the Site, based on historical and recent monitoring and assessment activities. The rose diagram, which is presented in Attachment D, suggests that the predominant groundwater flow direction is to the east-southeast.

3.5.3 Surface Water

The Green River is located approximately 1,900 feet (0.35 mile) south of the subject property. Based on the distance to the Green River the groundwater-to-surface water pathway cannot reasonably be considered to be complete.

3.6 Nature and Extent of Contamination

The primary sources of petroleum impacts at the Site are the former USTs and associated product piping that were used during operation of the former gas station from 1961 to 1983. Historical releases of gasoline fuel apparently occurred from the former UST system, which impacted soils and groundwater in the vicinity of the former tanks and product lines. The majority of those impacts were removed during the remedial action performed by SCS in April 2002.

3.6.1 Petroleum Impacts Remaining in Soil

Data obtained from the 2002 excavation limits and from subsequent investigations indicate that residual petroleum hydrocarbons remain in Site soil near the southwest corner of the subject property and beneath the southern property boundary at depths ranging between 2 and 11 feet bgs. The presence of buried utilities and the property line prevented further excavation where these impacts remain. Detectable GRO concentrations in this area range from 9.4 mg/kg to 840 mg/kg, while detectable BTEX compounds remain at concentrations up to 0.168 mg/kg, 0.24 mg/kg, 5.7 mg/kg, and 11 mg/kg, respectively. A summary of residual petroleum hydrocarbons remaining in soil is presented in Table 4 and corresponding soil sampling locations are shown on Figure 8. Remaining soil impacts at depth are illustrated in the cross-sections on Figure 9.

3.6.2 Petroleum Impacts Remaining in Groundwater

Groundwater in the vicinity of the impacted soil at the property boundary is also impacted with gasoline and related compounds. The most recent groundwater data collected from the monitoring wells in 2019 indicate detectable concentrations of GRO and BTEX in well OW3 at concentrations of 940 µg/L, 1.4 µg/L, 3.1 µg/L, 1.6 µg/L, and 3.3 µg/L, respectively. Dissolved concentrations appear to have extended off-property to the south and southeast, beneath Meeker Street, based on the data for 2015 sample location B-10 and 2019 sample location DPT-3. In 2015, groundwater from B-10 contained GRO at 160 µg/L and BTEX at 4.9 µg/L, 1.4 µg/L, 1.1 µg/L, and 5.2 µg/L, respectively (EPI 2016). However, in 2019, groundwater from DPT-3 only contained detectable GRO, which was present at 140 µg/L. Based on these data, dissolved impacts do not appear to extend beyond the southern boundary of Meeker Street

and the dissolved plume appears to be shrinking. Therefore, any remaining groundwater impacts associated with the Meeker Former Gas Station Site are very limited and appear to be restricted to a small area beneath the southwest property boundary and adjacent roadway. The groundwater data are summarized in Table 2 and shown on Figure 10.

3.6.2.1 Groundwater Plume Degradation Analysis

As discussed with Ecology during the November 2018 meeting and given the impracticality, health and safety hazards, and other limitations associated with monitoring off-property groundwater conditions to the east and south within the adjacent State Route 181 right-of-way, groundwater modeling was used to evaluate characteristics of the dissolved contaminant plume. Groundwater modeling was performed using Ecology's *Natural Attenuation Analysis Tool, Package A* in accordance with Ecology's *Guidance on Remediation of Petroleum-Contaminated Ground Water by Natural Attenuation* (Ecology 2005). This modeling uses extremely conservative and robust first order decay formulas for analyzing temporal and spatial characteristics of the plume.

The data used for evaluating a contaminant degradation timeframe (temporal analysis) included historical and recent GRO data for impacted well OW3. For evaluating plume extents (spatial analysis) the GRO data collected in June 2019 for OW3 and DPT-3 were used. A confidence level of 85% was used for the analyses. Copy of the groundwater modeling inputs and outputs from the Ecology tool are provided in Attachment E.

The temporal analysis confirms what is generally apparent from the observed summary data, that dissolved concentrations of GRO and BTEX are decreasing and will eventually attain cleanup levels. The temporal analysis predicts that groundwater quality at the Site will meet compliance with MTCA Method A cleanup standards by July of 2025, but no later than May of 2032, based on the 85% confidence level. Considering the strong decreasing trend that the data have exhibited since 2014 and the analytical results for June 2019, it is very likely that groundwater quality at the Site will reach compliance by or before the model's predicted restoration timeframe.

The spatial analysis indicates that the extent of the impacts to groundwater are well defined and limited in extent. Based on the model results, the current size of the GRO plume, as defined by the 800 µg/L isoconcentration (applicable cleanup level for GRO), extends to approximately 2.5 feet from OW3.

Because neither benzene nor other BTEX compounds were detected at a concentration above a cleanup level, neither the temporal nor spatial analysis were performed for those compounds.

3.7 Vapor Intrusion Evaluation

During the RI, the vapor intrusion (VI) pathway was initially assessed in accordance with Ecology's *Implementation Memorandum No. 14*, dated March 31, 2016 (Ecology 2016). That evaluation determined that there are no existing buildings present within the lateral inclusion zone for residual petroleum impacts, and therefore, no additional VI assessment is necessary. Per "Step 6" described on page 7 of the Ecology memorandum, 30 feet is an adequate and widely accepted horizontal separation distance between existing buildings and the edge of the contamination. Buildings or other occupied structures

that are more than 30 feet from the edge of the contaminated zone do not require further evaluation for potential VI risks. At the Site, there is a separation distance of approximately 65 feet between the closest existing building (i.e., the Rite Aid building) and the residual contamination. In addition, impacted groundwater is hydraulically downgradient from the Rite Aid building, so the potential for vapor migration from impacted groundwater is significantly minimized.

3.8 Terrestrial Ecological Evaluation

In accordance with WAC 173-340-7490, a terrestrial ecological evaluation (TEE) was performed for the Site to determine if it poses a threat to the terrestrial environment. The Site qualifies for the TEE exclusion set forth at WAC 173-340-7491(1)(c)(i), which states:

“For sites with hazardous substances other than those specified in (c)(ii) of this subsection [chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxophene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene], there is less than 1.5 acres of contiguous undeveloped land on or within 500 feet of any area of the Site.”

Therefore, terrestrial ecological exposures do not require further consideration. The completed *TEE Process – Primary Exclusions* form is provided as Attachment F.

3.9 Conceptual Site Model

A conceptual site model (CSM) was developed for the Site based on the data collected at the subject property. The CSM identifies current and potential future exposure pathways for human and ecological receptors. The CSM is presented as Attachment G and is discussed below:

- Following the 2002 remedial excavation, GRO and BTEX compounds remain in shallow soil at the southwest corner of the subject property and primarily beneath and immediately surrounding buried utilities. Residual GRO, benzene, and xylenes are present in this area at concentrations that exceed respective MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses, which are conservative values based on residential exposures and protection of groundwater.
- GRO and BTEX compounds have been detected in shallow groundwater near the southeastern boundary of the subject property where impacted soil remains. During the most recent well sampling event in June 2019, only GRO was detected in groundwater in this area at a concentration that exceeds the respective MTCA Method A Cleanup Level for Groundwater, which is a conservative value based on residential exposures and protection of drinking water.
- The 2015 and 2019 investigations confirmed that the remaining impacts in soil and groundwater at the subject property boundary are not adversely affecting water quality downgradient of the subject property beneath West Meeker Street. GRO and BTEX compounds were detected at concentrations slightly greater than the laboratory reporting limits in groundwater beneath the street in 2015, south of the subject property, but have likely decreased since then based on the

2019 data. The diminished concentrations detected in the downgradient locations suggest that impacted groundwater does not extend beyond the south edge of West Meeker Street.

- Groundwater modeling predicts that groundwater quality will meet full compliance by 2025.
- The source of the impacts to Site soil and groundwater appears to be from underground releases of petroleum hydrocarbons from the former gas station's USTs and associated piping. The majority of impacted soil was removed from the Site in 2002, and the lateral and vertical extents of remaining impacts appear to be very limited.
- The environmental media of concern at the Site are soil and groundwater. Potential current or future exposure pathways to remaining petroleum impacts include dermal, ingestion, and inhalation exposure by commercial workers during construction activities. Residential exposures are not reasonably possible given the current and likely future land use of the property.
- The VI pathway is not a concern for the Site based on a horizontal separation distance greater than 30 feet between remaining contaminants and existing buildings on the property.
- Based on WAC 173-340-7491, the Site qualifies for the exclusion from a TEE, as there is not a completed exposure pathway for TEE receptors (i.e., less than 1.5 acres of contiguous undeveloped land).

3.10 Cleanup Standards

Cleanup standards consist of cleanup levels and the point of compliance at which those levels must be met. Cleanup standards are used as the basis for developing remedial action objectives for a cleanup action.

3.10.1 Cleanup Levels

Cleanup levels (CULs) for affected media at the Site were evaluated in accordance with MTCA and take into consideration exposure pathways and receptors based on current and likely future uses of the Site. Because the Site is within an urban setting developed with buildings, roads, and sidewalks, and the Site qualifies for a TEE exclusion under WAC 173-340-7491(1)(c)(i), only exposure pathways for human receptors have been taken into consideration. Based on current and future land uses, the only potential pathway for exposure to COPCs at the subject property is direct contact (i.e., dermal, ingestion, and inhalation exposures) by construction workers.

CULs under MTCA may be established under Method A, Method B, or Method C. Under WAC 173-340-704(1), MTCA Method A CULs are appropriate for use at sites where:

- Few hazardous substances have been detected;
- The site is undergoing a routine cleanup action; and

- Numerical standards are available for applicable COPCs and media of concern.

MTCA Method A CULs are appropriate for the Site because there are a limited number of COPCs in soil and groundwater, all of the cleanup alternatives considered in the FS are routine cleanup actions, and there are established MTCA CULs for the COPCs in the affected media of concern.

The COPCs and their associated MTCA Method A CULs for soil at the Site include the following:

- GRO – 30 mg/kg;
- Benzene – 0.03 mg/kg;
- Toluene – 7 mg/kg;
- Ethylbenzene – 6 mg/kg; and
- Total xylenes – 9 mg/kg.

The COPCs and their associated MTCA Method A CULs for groundwater at the Site include the following:

- GRO – 800 µg/L;
- Benzene – 5 µg/L;
- Toluene – 1,000 µg/L;
- Ethylbenzene – 700 µg/L; and
- Total xylenes – 1,000 µg/L.

3.10.1 Points of Compliance

A point of compliance is that point or location on a property where the CULs must be attained in each medium of concern. The points of compliance for the Site were established in accordance with WAC 173-340-740(6) for soil and WAC 173-340-720(8) for groundwater. The point of compliance for soil is all soil throughout the Site and the point of compliance for groundwater is all groundwater throughout the Site.

3.10.2 Constituents of Concern

The constituents of concern (COCs) for the Site are those COPCs that have been detected in soil or groundwater at concentrations exceeding their respective MTCA Method A CULs. Based on the results of the environmental investigations and actions, the only COCs for soil at the Site are:

- GRO;
- Benzene; and
- Total xylenes.

COCs for groundwater are:

- GRO; and
- Benzene.

4.0 FEASIBILITY STUDY

The purpose of an FS is to develop and evaluate cleanup alternatives for a site and select a final cleanup action in accordance with WAC 173-340-350(8). The objective of a selected cleanup action is to protect human health and the environment and to meet the requirements of MTCA. This FS evaluates and selects a cleanup action that will serve as a final, permanent remedy for the Site. The cleanup action selected in this FS does not foreclose future remedial action in areas of the Site not located on the subject property.

4.1 Applicable Regulations

The work documented herein is intended to comply with the laws and regulations of the State of Washington. The work to be performed during implementation of the selected remedy will be performed under the VCP and will comply with MTCA (70.105D RCW) and its implementing regulations (WAC 173-340). Applicable or Relevant and Appropriate Requirements (ARARs) for the selected remedy will be MTCA, and all potential exposure pathways will be addressed. This Revised RI/FS/CAP contains a fully MTCA-compliant CUL development. Therefore, further consideration of ARARs is not warranted and MTCA has been selected as the regulation with primacy for this project.

4.2 Remedial Action Objectives

Remedial action objectives (RAOs) have been established for the Site to provide remedial alternatives that protect human health and the environment under the MTCA cleanup process (WAC 173-340-350). Based on the assessment of conditions at the Site and the applicable CULs presented in Section 3.10.1, the RAOs for the Site have been established as follows:

- Prevent human exposure to soil and groundwater exhibiting concentrations of COCs in excess of the CULs identified in Section 3.0.
- If feasible, reduce concentrations of COCs in soil to levels protective of human health and the environment and that are protective of groundwater quality.

- If feasible, reduce concentrations of COCs in groundwater to levels protective of human health and the environment.

The RAOs are of primary importance to the evaluation of the general response actions, technologies, process options, and cleanup action alternatives presented in this FS.

4.3 Analysis of All Known, Available, and Reasonable Technologies (AKART)

Based on the physical conditions at the Site, the available remedial options are limited. Typically, general response actions that are applicable to most impacted sites include the following:

- No action;
- Institutional controls;
- Monitored natural attenuation (MNA);
- Containment;
- Removal;
- *Ex situ* treatment; and
- *In situ* treatment.

Potentially applicable technologies associated with these general response actions have been identified and screened based on the Site COCs and affected media, and take into consideration the current and future use of the property. The remedial alternatives under evaluation herein are based on the response actions and applicable technologies, and are presented in Section 4.4 below.

4.4 Description of Remedial Alternatives

EPI evaluated the following remedial alternatives to address the impacts to soil and groundwater at the Site. This evaluation is based upon EPI's past experience, best professional judgment, and the application of scientific principles to the known and available data.

The following three remedial alternatives were evaluated as part of this FS:

- Alternative 1 – Institutional Controls
- Alternative 2 – Excavation of All Remaining Impacted Soil
- Alternative 3 – *In Situ* Treatment of Impacted Soil and Groundwater

Descriptions of each of the alternatives are provided below.

4.4.1 Alternative 1 – Institutional Controls

This remedial alternative consists of implementing institutional controls to limit exposures to remaining impacts. No additional excavation would be performed.

For Alternative 1 it is assumed that an Environmental Covenant (EC) would be implemented for the Site that imposes restrictions on the use of the affected portion of the land such that it cannot be redeveloped for residential purposes. Land use restrictions would remain in force until COC concentrations decrease to levels less than the CULs.

The EC will apply to the southeast portion of the subject property and adjacent public right-of-way, including the utility easement, that contain concentrations of COCs greater than the CULs. The EC would also include deed notifications to inform future property owners of the presence of contaminants.

If implemented, this remedy may need to be altered in the future if redevelopment of the affected property is desired before COCs reduce to levels that comply with the CULs.

The general scope of Alternative 1 would consist of the following:

- Prepare an EC according to Ecology's template;
- Implement the EC; and
- Prepare a final Cleanup Action Report.

4.4.2 Alternative 2 – Excavation of All Remaining Impacted Soil

This remedial alternative consists of excavation and off-Site disposal of all impacted soil that exceeds the CULs developed in Section 3.10.1. This remedial option will also fully address groundwater impacts at the Site, as it will serve to remove the source of dissolved COCs. It is currently estimated that approximately 200 cubic yards of in-place soil exceed the CULs at the Site.

For Alternative 2 it is assumed that remediation will consist of removal, off-Site disposal, and replacement of approximately 220 cubic yards of soil, which is the total in-place volume of impacted soil plus a 10 percent contingency for additional volume based on performance sampling results. To implement this alternative, it is assumed that the existing buried utilities that are within the area of remaining soil impacts will need to be temporarily rerouted prior to the soil excavation work then replaced following completion of the soil excavation.

After all remaining impacted soil has been removed from the Site, groundwater would be sampled on a quarterly basis to monitor for compliance with the CULs. Quarterly monitoring would be conducted until groundwater demonstrates compliance for four consecutive quarters.

The general scope of Alternative 2 would consist of the following:

- Prepare a Sampling and Analysis Plan (SAP) and Health and Safety Plan (HASp);
- Obtain appropriate construction permits;

- Prepare the Site with appropriate traffic control and public safety and security measures;
- Coordinate with the affected utility companies and the City of Kent Public Works department for relocating affected utility lines out of the impacted zone;
- Excavate and dispose of 220 cubic yards of PCS;
- Sample and analyze excavated soil to document soil conditions for disposal;
- Sample and analyze soil from the limits of the excavation;
- Import, place, and compact clean backfill in the excavated area;
- Re-install all previously re-routed utilities back into the affected utility corridor and restore the ground surface to pre-existing conditions;
- Install additional monitoring wells and performing quarterly groundwater compliance monitoring to verify the effectiveness of the remedial alternative in addressing groundwater impacts; and
- Document all remedial activities.

4.4.3 Alternative 3 – *In Situ* Treatment of Impacted Soil and Groundwater

This remedial alternative consists of active soil and groundwater remediation using *in situ* treatment technologies in close proximity to the area of remaining COCs that exceed the CULs. Soil vapor extraction (SVE) would be used for treating the impacted soil that is present at depths shallower than the groundwater table, and injections of ORC would be used for treating dissolved COCs in groundwater. Under an induced vacuum, SVE will volatilize and physically remove sorbed contaminants from the soil to reduce concentrations of residual contaminants. Injection of ORC into groundwater will increase dissolved oxygen levels to enhance aerobic biological activity and naturally break down residual petroleum hydrocarbons.

For Alternative 3, a regenerative vacuum blower would be used to apply vacuum to a small network of SVE wells to extract soil vapors and facilitate mass removal of contaminants from Site soil. The SVE wells would be constructed of 4-inch diameter polyvinyl chloride (PVC), installed to an approximate depth of 8 feet bgs, with approximately 5 feet of slotted screen (i.e., 3 to 8 feet bgs). A 15-foot radius of influence for SVE is assumed for this alternative; however, pilot testing would be necessary to confirm the actual radius of influence for design and implementation. Extracted soil vapors would initially be treated through activated carbon filters prior to discharge to the atmosphere. At a minimum, the system would require regular operation and maintenance and monitoring of system vapors monthly until it is no longer needed. It is assumed that the SVE system would need to operate for about 2 years to fully remediate Site soil. A conceptual layout for implementing SVE is illustrated in Figure 10.

The groundwater treatment component of Alternative 3 would include pressurized injections of ORC slurry using direct-push technology. The injection borings would be advanced in locations near and immediately upgradient from the zone of impacted groundwater (Figure 10). It is anticipated that one to two injection events would be necessary to complete groundwater remediation in this area. Quarterly groundwater monitoring would be necessary to determine whether additional ORC injections would be necessary and also to determine when groundwater compliance has been met.

The general scope of Alternative 3 would consist of the following:

- Prepare an Engineering Design and Work Plan;
- Prepare a SAP and HASP;
- Perform a pilot test to evaluate the treatment methods;
- Obtain construction permits for excavating SVE trenches;
- Obtain an air permit for treated vapor discharges;
- Prepare the Site with appropriate traffic control and public safety and security measures;
- Drill and install SVE wells;
- Excavate SVE trenches and install SVE conveyance piping;
- Backfill trenches and restore the ground surface to pre-existing conditions;
- Procure and set up aboveground SVE equipment and carbon treatment vessels, and connect SVE piping to equipment;
- Operate the SVE system for approximately 2 years;
- Perform up to two ORC injection events using direct-push technology and ORC slurry;
- Monitor the soil and groundwater treatment monthly to verify performance and compliance with the air permit;
- Install additional monitoring wells and performing quarterly groundwater compliance monitoring to verify the effectiveness of the remedial alternative in addressing groundwater impacts; and
- Document all remedial activities.

4.5 MTCA Threshold Requirements

A selected cleanup action must satisfy the requirements of WAC 173-340-360(2). These requirements include both threshold requirements (WAC 173-340-360(2)(a)) and other requirements (WAC 173-340-360(2)(b)). The threshold requirements include:

- Protection of human health and the environment;
- Compliance with cleanup standards;
- Compliance with applicable state and federal laws; and
- Provisions for compliance monitoring.

Other requirements include:

- Use of permanent solutions to the maximum extent practicable;
- Provisions for a reasonable restoration time frame; and
- Consideration of public concerns.

4.6 Evaluation of Remedial Alternatives

This section presents an evaluation and comparison of the proposed remedial alternatives for selecting the preferred cleanup action for the Site. In accordance with MTCA, the alternatives are evaluated relative to the criteria and sub-criteria specified in WAC 173-340-360(3)(f) and WAC 173-340-360(4), which include the following:

- Protectiveness;
- Permanence;
- Effectiveness over the long term;
- Management of short-term risks;
- Technical and administrative implementability;
- Consideration of public concerns;
- Restoration time frame; and
- Cost.

A summary of the evaluation of the proposed alternatives is provided in Table 5 and each criterion is addressed in Sections 4.6.1 through 4.6.8. The overall evaluation is then used to determine the relative benefit of each alternative.

Based upon EPI's experience, best professional judgment, and the application of scientific principles, each alternative has been assigned a score for each criterion ranging from 5 (best) to 1 (worst). Each score is based on the perceived benefit associated with the criterion and is included in Table 5. Several of the criteria are comprised of sub-criteria. In such cases, each sub-criterion is scored and the average of those scores is used as the criterion score. Alternatives deemed equally beneficial for a criterion or sub-criterion are given the same score. The highest score is the preferred alternative for the non-cost criteria.

Two of the three proposed alternatives present a permanent solution to the observed conditions. As indicated in WAC 173-340-360(d), it is necessary to perform a disproportionate cost analysis (DCA) if a permanent solution is to be considered. For the DCA, the non-cost criteria are weighted based on weighting factors established by Ecology and then summed. That summed score is then compared to the conceptual cost of each alternative. The results of the DCA are presented in Section 4.6.9.

4.6.1 Protectiveness

Protectiveness is defined in WAC 173-340-360(3)(f)(i) as:

“Overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, time required to reduce risk at the facility and attain cleanup standards, on-site and off-site risks resulting from implementing the alternative, and improvement of the overall environmental quality.”

All remedial alternatives are protective of human health and the environment. Two of the alternatives actively remediate soil beneath the Site, while one alternative imposes restrictions to prevent exposures. Alternative 2 is most protective because it removes all impacted soils to the maximum extent practicable in the shortest amount of time. Alternative 3 is slightly less protective than Alternative 2 primarily because the *in situ* treatment will require more time to achieve compliance than removal and off-Site disposal. Alternative 1 is the least protective of each of the alternatives evaluated because contamination would remain in place at the Site following its implementation.

Alternative 1 is assigned a score of 1.5, Alternative 2 is assigned a score of 5, and Alternative 3 is assigned a score of 3.3.

4.6.2 Permanence

Permanence is defined in WAC 173-340-360(3)(f)(ii) as:

“The degree to which the alternative permanently reduces the toxicity, mobility or volume of hazardous substances, including the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of waste treatment process, and the characteristics and improvement of the overall environmental quality.”

At the completion of remedial activities, Alternatives 2 and 3 will each result in a permanent solution. Alternative 1, if implemented indefinitely, would also be a permanent solution, but would have a much lower degree of permanence during its implementation due to the contamination remaining in place for a significantly longer time frame.

Permanence includes the sub-criteria of reduction in toxicity, degree of irreversibility, and the type and character of the waste streams generated during treatment. Due to the soil waste stream that would be generated during excavation and disposal, Alternative 2 ranks slightly lower than Alternative 3 for this sub-criterion. While all technologies, if successfully implemented, would be permanent, the degree of certainty in the success of each technology varies due to the nature of the technologies.

Alternative 1 is assigned a score of 2.3, Alternative 2 is assigned a score of 3.7, and Alternative 3 is assigned a score of 3.

4.6.3 Effectiveness over the Long Term

Effectiveness over the long term is defined in WAC 173-340-360(3)(f)(iv) as:

“Long-term effectiveness includes the degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time hazardous substances are expected to remain on-site at concentrations that exceed cleanup levels, the magnitude of residual risk with the alternative in place, and the effectiveness of controls required to manage treatment residues or remaining wastes. The following types of cleanup action components may be used as a guide, in descending order, when assessing the relative degree of long-term effectiveness: Reuse or recycling; destruction or detoxification; immobilization or solidification; on-site or off-site disposal in an engineered, lined and monitored facility; on-site isolation or containment with attendant engineering controls; and institutional controls and monitoring.”

Alternatives 2 and 3 both have the intent and goal of meeting cleanup standards and protecting human health and the environment after completion of the remedial action, while Alternative 1 has the intent and goal of protecting human health and the environment during its implementation. There are varying levels of uncertainty and reliability associated with each technology throughout the process. Long-term effectiveness includes the sub-criteria of certainty, reliability, residual risk, and utilization of preferred remedies. Alternatives 2 and 3 are ranked higher for long-term effectiveness than Alternative 1 primarily due to their higher degree of certainty and general reliability associated with the technology used.

Alternative 1 is assigned a score of 1.8, Alternative 2 is assigned a score of 4.3, and Alternative 3 is assigned a score of 3.5.

4.6.4 Management of Short-Term Risks

Management of short-term risks is defined in WAC 173-340-360(3)(f)(v):

“The risk to human health and the environment associated with the alternative during construction and implementation, and the effectiveness of measures that will be taken to manage such risks.”

Each of the alternatives has manageable short-term risks and effective measures for mitigating those risks. Alternative 1 has been ranked the highest for this criterion because it does not involve any intrusive work and, therefore, little to no short-term risks. Alternative 2 has the highest level of short-term risk of the three alternatives due to the excavation work and moving of existing underground utilities. Alternative 3 has moderate risks associated with the drilling and trenching near buried utilities.

Alternative 1 is assigned a score of 5, Alternative 2 is assigned a score of 1.5, and Alternative 3 is assigned a score of 2.

4.6.5 Technical and Administrative Implementability

Technical and administrative implementability is defined in WAC 173-340-360(3)(f)(vi):

“Ability to be implemented including consideration of whether the alternative is technically possible, availability of necessary off-site facilities, services and materials, administrative and regulatory requirements, scheduling, size, complexity, monitoring requirements, access for construction operations and monitoring, and integration with existing facility operations and other current or potential remedial actions.”

This criterion includes the concepts of technical possibility, access, necessary resources, monitoring requirements, and integration into existing facility features. All alternatives are technically possible to implement, but primarily vary based on their overall complexity. Alternative 1 received the highest implementability score because it is the easiest to implement. Alternative 2 received the lowest score because it is the most complex alternative due to the necessary relocation and replacement of buried utilities and potentially difficult access and limited space for performing the excavation work.

Alternative 1 is assigned a score of 5, Alternative 2 is assigned a score of 1.5, and Alternative 3 is assigned a score of 2.

4.6.6 Consideration of Public Concerns

Consideration of public concerns is defined in WAC 173-340-360(3)(f)(vii):

“Whether the community has concerns regarding the alternative, and if so, the extent to which the alternative addresses those concerns. This process includes concerns from individuals, community groups, local governments, tribes, federal and state agencies, or any other organization that may have an interest in or knowledge of the site.”

Public concerns are expected to vary depending on the remedial action. There would likely be more significant concerns associated with Alternative 2 due to the need for rerouting and replacing utilities, temporary closure of the sidewalk and a portion of the adjacent roadway, increased traffic, construction noise, and the high potential for generating fugitive vapors and dust during excavation activities. Public concerns associated with Alternative 3 would not be as significant as those associated with Alternative 2, but would likely include concerns regarding drilling and trenching in close proximity to buried utilities, noise issues during construction and during SVE system operation, potential vapor discharges from the SVE system, and use of a portion of the parking lot for placement of system equipment. Alternative 1 would not have these concerns, but would likely have concerns associated with leaving impacted soil in place and related issues involving potential future redevelopment.

Alternative 1 is assigned a score of 4, Alternative 2 is assigned a score of 2, and Alternative 3 is assigned a score of 3.

4.6.7 Restoration Time Frame

Restoration time frame (RTF) is evaluated using the following factors described in WAC 173-340-360(4)(b)(i through ix):

- *“Potential risks posed by the site to human health and the environment*
- *Practicability of achieving a shorter RTF*
- *Current use of the site*
- *Potential future use of the site*
- *Availability of alternative water supplies*
- *Likely effectiveness and reliability of institutional controls*
- *Ability to monitor and control migration of hazardous substances from the site*
- *Toxicity of hazardous substances at the site*
- *Natural processes that reduce concentrations of hazardous substances at the site.”*

Estimates of RTF are necessarily subjective. Each of the alternatives is assumed to provide a reasonable RTF, but more accurate estimates of *in situ* treatment effectiveness are premature without data regarding actual treatment effectiveness and response to the methods that will be used.

RTF was ranked based upon the general aggressiveness of each of the remedial actions and perceived certainty associated with the action. Alternative 2 is judged to be the most aggressive based on the contaminant mass removed in the shortest period of time. Although Alternative 3 also removes contaminant mass, the certainty associated with its successful implementation and ability to achieve cleanup standards is perceived to be lower than that of Alternative 2. Alternative 1 would have the longest restoration time frame than the other alternatives due to its lack of using any active remediation technology to remove contaminants.

Alternative 1 is assigned a score of 1, Alternative 2 is assigned a score of 5, and Alternative 3 is assigned a score of 3.

4.6.8 Cost

Cost is defined in WAC 173-340-360(3)(f)(iii) as:

“The cost to implement the alternative, including the cost of construction, the net present value of any long-term costs, and agency oversight costs that are cost recoverable. Long-term costs include operation and maintenance costs, monitoring costs, equipment replacement costs, and the cost of maintaining institutional controls. Cost estimates for treatment technologies shall describe pretreatment, analytical, labor, and waste management costs. The design life of the cleanup action shall be estimated and the cost of replacement or repair of major elements shall be included in the cost estimate.”

Order-of-magnitude remediation costs (i.e., ± 30 to 50 percent) were estimated for each of the remedial alternatives based on the descriptions presented in Section 4.4 and associated assumptions, and without engineering design or contractor bidding. The order-of-magnitude remedial costs are based on typical costs for Washington State and the current knowledge of the Site and are summarized in the following table. These costs are for comparison purposes only and actual implementation costs will vary from those provided below. These estimated costs incorporate a variety of necessary assumptions and the validity of those assumptions cannot be fully known at this time.

Remedial Alternatives Cost Summary

Remedial Alternative	Order-of-Magnitude Remediation Cost Estimate
1. Institutional Controls	\$ 20,000
2. Excavation of All Remaining Impacted Soil	\$ 900,000
3. <i>In Situ</i> Treatment of Impacted Soil and Groundwater	\$ 500,000

4.6.9 Disproportionate Cost Analysis

Under WAC 173-340-360(3)(e), a cleanup action shall not be considered practicable “if the incremental cost of the alternative over that of a lower cost alternative exceeds the incremental degree of benefits achieved by the alternative over that of the other lower cost alternative.” The determination of practicability is made using an analysis of benefit versus cost. The DCA can be performed quantitatively using the judged scoring of the non-cost criteria as the net benefit.

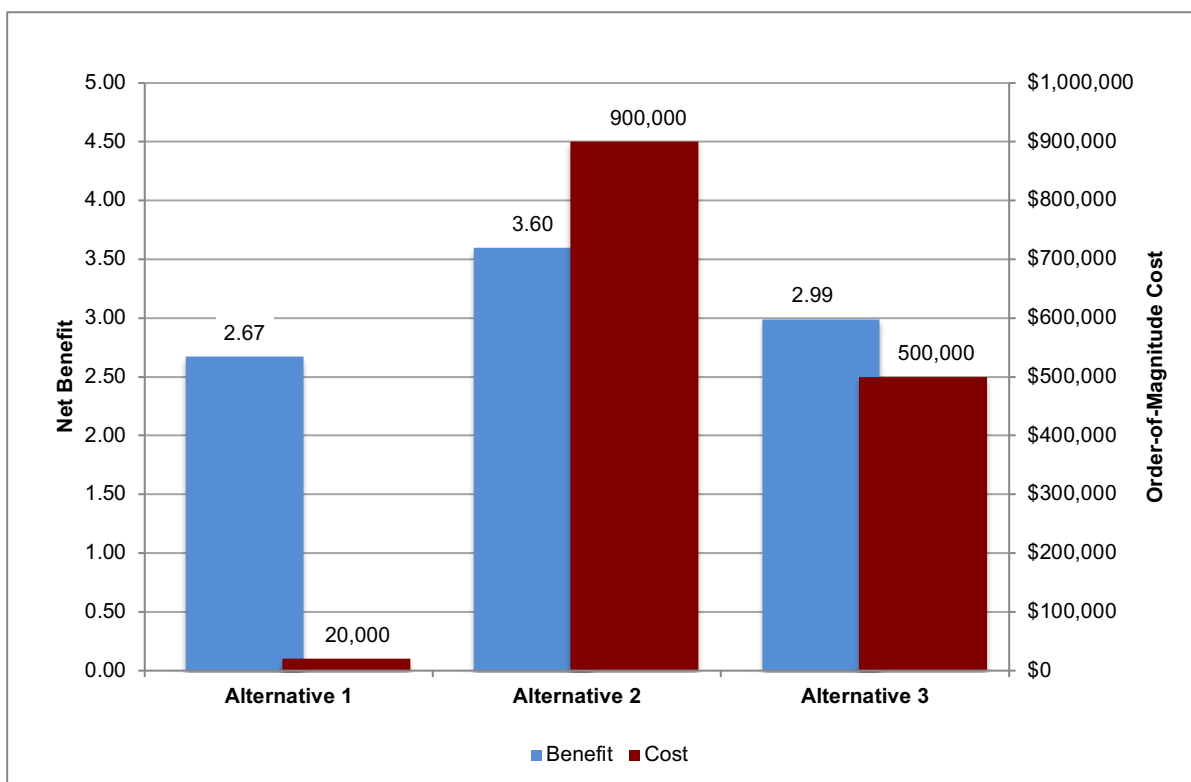
As previously discussed, each alternative was assigned a score for each of the non-cost evaluation criteria, with a score of 5 representing the highest overall perceived benefit and a score of 1 representing the lowest overall perceived benefit. The raw scores that were assigned in Sections 4.6.1 through 4.6.7 are summarized below and are weighted for each criterion according to weighting factors established by Ecology. The sum of the individual weighted scores for each alternative represents a value of the overall benefit of the alternative.

The table and chart below present the DCA using the estimated order-of-magnitude costs and quantitative net benefit values.

Remedial Alternatives Scoring Summary

Factor	Weighting	Alternative 1		Alternative 2		Alternative 3	
		Rank	Value	Rank	Value	Rank	Value
Protectiveness	0.3	1.5	0.45	5.0	1.50	3.3	0.99
Permanence	0.2	2.3	0.46	3.7	0.74	3.0	0.60
Long-Term Effectiveness	0.2	1.8	0.36	4.3	0.86	3.5	0.70
Short-Term Risk	0.1	5.0	0.50	1.5	0.15	2.0	0.20
Implementability	0.1	5.0	0.50	1.5	0.15	2.0	0.20
Public Concerns	0.1	4.0	0.40	2.0	0.20	3.0	0.30
Sum	1	2.67		3.60		2.99	

Cost-to-Benefit Analysis



4.7 Selected Cleanup Action

Based on the remedial alternatives evaluation, Alternative 2 ranks highest overall in raw scoring for the non-cost criteria (i.e., a total of 3.60 compared to scores of 2.67 and 2.99 for Alternatives 1 and 3, respectively). However, the scores are not appreciably different between any of the remedial alternatives. Alternative 1 is significantly lower in cost than the other alternatives. While the weighted score for Alternative 1 is slightly lower than Alternative 2 and Alternative 3, the perceived benefit for the estimated cost of Alternative 1 is significantly greater, as shown in the above graph.

Institutional controls would be appropriate for this Site due to the limited potential for exposures to COCs exceeding the CULs. The remaining soil impacts are very limited in extent and are covered by the southwestern portion of the parking lot and the adjacent sidewalk. Recent data also indicate that while COCs are present in groundwater that extends to the south beneath Meeker Street, those impacts do not appear to extend beyond the southern boundary of Meeker Street and the concentrations beneath the street are all less than the CULs. In general, the use of the affected portion of the subject property and adjacent public right-of-way and the lack of significant migration of COCs will serve to isolate the remaining impacts from human contact while concentrations continue to exceed the CULs.

Alternative 1 is protective of human health and the environment, and adequately manages and addresses the Threshold Criteria and DCA evaluation criteria. This alternative also does not represent a disproportionate cost relative to the level of protectiveness provided.

Alternatives 2 and 3 do not provide a substantially greater level of environmental protectiveness, but do result in substantial and disproportionate costs. Those alternatives also have substantial short-term risks and issues related to public concerns.

5.0 CLEANUP ACTION PLAN

As indicated above, institutional controls in the form of a deed restriction has been selected as the preferred cleanup action for the Site (Alternative 1). To implement this action, an EC will be prepared according to the Ecology template provided in Attachment E.

The EC will only be applicable to the portions of the subject property and adjacent City-owned property that are impacted with COCs at concentrations greater than the CULs. In order to identify this area in the EC, a land survey will be performed and a legal description and boundary map will be prepared by a licensed surveyor. Performance of the survey will include placement of boundary markers or reference monuments on the property to physically identify the area addressed by the EC. The legal description and map will cover all affected parcels.

Along with the new legal description and boundary map, the EC will also include specific restrictions to be placed on the use of the affected property. Land use restrictions will be determined through direct communications with the local planning authority and consultations with Ecology staff.

Once the EC has been prepared, all affected property owners and persons holding other property interests such as utility easements and public right-of way will be required to provide a notarized signature on the EC. The signed EC will then be submitted to Ecology for final signature.

After the EC has been signed by all parties, it will be submitted to the County Auditor and recorded on the title of each parcel of real property subject to the EC. The original recorded EC will then be sent to Ecology for their records, and copies will be provided to all signatories and interested parties.

6.0 LIMITATIONS

To the extent that preparation of this Revised RI/FS/CAP required the application of best professional judgment and the application of scientific principles, certain results of this work were 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 Revised RI/FS/CAP is not to be construed as legal advice.

7.0 REFERENCES

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Tables

Table 1
Summary of Historical and Current Soil Analytical Data
Revised Remedial Investigation, Feasibility Study, and Cleanup Action Plan
Meeker Former Gas Station Site
105 Washington Avenue N, Kent, WA

Sample Location	Sample ID	Sample Depth (feet)	Sample Date	TPH ^a	GRO ^b	DRO ^c	ORO ^c	Benzene ^d	Toluene ^d	Ethyl-benzene ^d	Total Xylenes ^d	Lead ^e
Phase II Environmental Site Assessment (SCS Engineers – 1991)												
BH1	BH1-10'	10	4/25/91	<10	–	–	–	–	–	–	–	–
	BH1-15'	15	4/25/91	<10	–	–	–	–	–	–	–	–
BH2	BH2-5'	5	4/25/91	1,800^f	–	–	–	–	–	–	–	–
	BH2-15'	15	4/25/91	<10	–	–	–	–	–	–	–	–
BH3	BH3-10'	10	4/25/91	<10	–	–	–	–	–	–	–	–
	BH3-15'	15	4/25/91	<10	–	–	–	–	–	–	–	–
BH4	BH4-10'	10	4/25/91	47^g	–	–	–	–	–	–	–	–
	BH4-15'	15	4/25/91	44^g	–	–	–	–	–	–	–	–
Phase II Environmental Site Assessment (Giles Engineering Associates – 1998)												
B1/MW1	B1-6'	6	1/26/98	–	7	–	–	<0.1	<0.1	<0.1	<0.3	–
B2	B2-7'	7	1/26/98	–	–	<26	<51	–	–	–	–	–
B3/MW3	B3-7'	7	1/26/98	–	6	–	–	<0.1	<0.1	<0.1	<0.3	–
B4	B4-4'	4	1/26/98	–	380	–	–	<0.4	0.6	2.9	10	12
B8/MW2	B8-4'	4	3/11/98	–	120	–	–	<0.5	<0.5	<0.5	<1.5	–
B9	B9-4'	4	3/11/98	–	700	–	–	<0.5	<0.5	5.7	9.8	–
B10	B10-6'	6	3/11/98	–	27	–	–	<0.1	<0.1	0.2	0.3	–
B11	B11	NR	3/11/98	–	<5	–	–	<0.1	<0.1	<0.1	<0.3	–
B12	B12	NR	3/11/98	–	<5	–	–	<0.1	<0.1	<0.1	<0.3	–
B13/MW4	B13-3'	3	3/11/98	–	38	–	–	3	0.1	0.1	<0.3	–
Supplemental Assessments (SCS Engineers – 2000 and 2002)												
DP-13	DP13-11'	11	4/6/00	–	85	–	–	<0.05	0.079	1.3	3.1	–
SP1	SP1-2.8'	2.8	1/14/02	–	24	<20	<50	<0.02	<0.05	<0.05	<0.05	–
	SP1-8.5'	8.5	1/14/02	–	<5	<20	<50	<0.02	<0.05	<0.05	<0.05	–
SP2	SP2-2.5'	2.5	1/14/02	–	<5	<20	<50	<0.02	<0.05	<0.05	<0.05	–
	SP2-4	4	1/14/02	–	<5	<20	<50	<0.02	<0.05	<0.05	<0.05	–
	SP2-6.8	6.8	1/14/02	–	<5	<20	<50	<0.02	<0.05	<0.05	<0.05	–
SP3	SP3-4'	4	1/14/02	–	64	<20	<50	<0.02	<0.05	0.19	0.16	–
	SP3-10'	10	1/14/02	–	9.4	<20	<50	<0.02	<0.05	<0.05	<0.05	–
SP4	SP4-7.5'	7.5	1/14/02	–	<5	<20	<50	<0.02	<0.05	<0.05	<0.05	–

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SP5	SP5-3'	3	1/14/02	--	<5	<20	<50	<0.02	<0.05	<0.05	<0.05	--
	SP5-8'	8	1/14/02	--	<5	<20	<50	<0.02	<0.05	<0.05	<0.05	--
SP6	SP6-3'	3	1/14/02	--	8.8	<20	<50	<0.02	<0.05	<0.05	<0.05	--
	SP6-9.5'	9.5	1/14/02	--	<5	<20	<50	<0.02	<0.05	<0.05	<0.05	--
Remedial Excavation (SCS Engineers – 2002)												
N Sidewall	A3south-3'	3	4/22/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05	--
NW Sidewall	B2-3'	3	4/22/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05	--
N Floor	B2-7'	7	4/19/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05	--
N Excavation ^h	B3NW-3'	3	4/19/02	--	130	--	--	<0.02	<0.05	0.15	0.17	--
NE Sidewall	B4east-3'	3	4/22/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05	--
W Sidewall	C0SE-2'	2	4/22/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05	--
Central Floor	C3-8'	8	4/19/02	--	130	--	--	<0.02	<0.05	4.2	0.32	--
E Sidewall	C4-7'	7	4/19/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05	--
SW Sidewall	D0east-2'	2	4/22/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05	--
S Excavation ^h	D1-2'	2	4/19/02	--	580	--	--	<0.02	<0.05	<0.05	1.1	--
SW Excavation	D1south-2'	2	4/22/02	--	840	--	--	<0.02	<0.05	0.28	11	--
S Excavation ^h	D2east-5'	5	4/19/02	--	220	--	--	<0.02	<0.05	0.25	0.92	--
S Sidewall	D2-3'	3	4/19/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05	--
S Sidewall	D3-5'	5	4/19/02	--	140	--	--	<0.02	<0.05	0.80	0.54	--
S Floor	D3-7.5'	7.5	4/19/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05	--
SE Sidewall	D4-7.5'	7.5	4/19/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05	--
Soil and Groundwater Assessment (SCS Engineers – 2002)												
OW1	OW1-5'	5	5/17/02	--	<4.22	--	--	<0.022	<0.043	<0.043	<0.085	--
OW2	OW2-5'	5	5/17/02	--	<4.83	--	--	<0.024	<0.049	<0.049	<0.097	--
OW3	OW3-5'	5	5/17/02	--	271	--	--	0.168	0.084	1.5	2.883	--
	OW3-10'	10	5/17/02	--	31	--	--	0.091	0.015	0.104	0.181	--
	OW3-15'	15	5/17/02	--	<5.04	--	--	<0.026	<0.051	<0.051	0.007	--
Site Investigation (Environmental Partners, Inc. – 2015)												
B-7	B-7:12	12	11/6/15	--	<2	--	--	<0.02	<0.02	<0.02	<0.06	--
B-9	B-9:5	5	11/6/15	--	<2	--	--	<0.02	<0.02	<0.02	<0.06	--
B-10	B-10:5	5	11/12/15	--	<2	--	--	<0.02	<0.02	<0.02	<0.06	--


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Soil and Groundwater Assessment (Environmental Partners, Inc. – 2019)												
DPT-1	DPT-1:7.5	7.5	6/8/19	--	<5	--	--	<0.02	<0.02	<0.02	<0.06	--
DPT-2	DPT-2:7	7	6/8/19	--	<5	--	--	<0.02	<0.02	<0.02	<0.06	--
DPT-3	DPT-3:9	9	6/8/19	--	130	--	--	<0.02	0.24	0.31	1.6	--
MTCA Method A Soil Cleanup Levels for Unrestricted Land Usesⁱ				NVE	30/100^j	2,000	2,000	0.03	7	6	9	250

Notes:

All results presented in milligrams per kilogram (mg/kg).

Bold Bold results indicate that the compound was detected.

 Shaded cells indicate that the compound was detected at a concentration greater than the cleanup level.

a Total petroleum hydrocarbons (TPH) analyzed by EPA Method 8015, unless otherwise noted.

b Gasoline-range organics (GRO) analyzed by WTPH-G (prior to 2000) and NWTPH-Gx (2000 and later).

c Diesel-range (DRO) and oil-range organics (ORO) analyzed by NWTPH-Dx.

d Benzene, toluene, ethylbenzene, and total xylenes (BTEX) analyzed by EPA Method 8020 (1998) and 8021B (2000 and later).

e Lead analyzed by EPA Method 7420.

f Identified as diesel range.

g Analyzed by EPA Method 418.1.

h Identified as a characterization sample for soil that was excavated.

i Model Toxics Control Act (MTCA) cleanup levels from Table 740-1 in Chapter 1732-340-900.

j Cleanup level is 30 mg/kg when benzene is present, and 100 mg/kg when benzene is not detected.

-- Not analyzed.

NR Not reported.

NVE No value established.

Table 2
Summary of Historical and Current Groundwater Analytical Data
Revised Remedial Investigation, Feasibility Study, and Cleanup Action Plan
Meeker Former Gas Station Site
105 Washington Avenue N, Kent, WA

Sample Location	Consultant	Sample Date	GRO ^a	DRO ^b	ORO ^b	Benzene ^c	Toluene ^c	Ethyl-Benzene ^c	Total Xylenes ^c
Reconnaissance Groundwater Samples									
B4	Giles	1/26/98	890	–	–	1	<1	5	<3
B7	Giles	1/26/98	–	<250	<500	–	–	–	–
B9	Giles	3/11/98	870	–	–	61	1	14	4
B10	Giles	3/11/98	630	–	–	3	<1	4	<3
DP13	SCS	4/6/00	9,000	–	–	330	12	230	860
SP1	SCS	1/14/02	<100	<200	<500	<1.0	<1.0	<1.0	<1.0
SP2	SCS	1/14/02	<100	<200	<500	<1.0	<1.0	<1.0	<1.0
SP3	SCS	1/14/02	1,500	<200	<500	6.4	<1.0	<1.0	8.9
SP4	SCS	1/14/02	1,200	<200	<500	5.0	<1.0	<1.0	<1.0
SP5	SCS	1/14/02	160	<200	<500	<1.0	<1.0	<1.0	<1.0
SP6	SCS	1/14/02	<100	<200	<500	<1.0	<1.0	<1.0	<1.0
B-7	EPI	11/6/15	<100	–	–	<1	<1	<1	<3
B-9	EPI	11/6/15	<100	–	–	<1	<1	<1	<3
B-10	EPI	11/12/15	160	–	–	4.9	1.4	1.1	5.2
DPT-1:W	EPI	6/8/19	<100	–	–	<1 ^g	<1 ^g	<1 ^g	<3 ^g
DPT-2:W	EPI	6/8/19	<100	–	–	<1 ^g	<1 ^g	<1 ^g	<3 ^g
DPT-3:W	EPI	6/8/19	140	–	–	<1 ^g	<1 ^g	<1 ^g	<3 ^g
Monitoring Well Samples									
MW1	Giles	1/26/98	<50	–	–	<1	<1	<1	<3
	Giles	4/15/98	<50	–	–	<1	<1	<1	<3
	SCS	1/9/02	<100	<200	<500	<1.0	<1.0	<1.0	<1.0
MW2	Giles	3/11/98	1,600	–	–	120	3	60	31
	Giles	4/15/98	4,800	–	–	84	<5	130	<15
	SCS	1/9/02	1,700	<200	<500	13	<1.0	14	<1.0
MW3	Giles	1/26/98	<50	–	–	<1	<1	<1	<3
	Giles	4/15/98	<50	–	–	<1	<1	<1	<3
	SCS	1/9/02	<100	<200	<500	<1.0	<1.0	<1.0	<1.0
	SCS	6/6/02	<100	–	–	<0.5	<1	<1	<3
	SCS	9/9/02	<100	–	–	<0.5	<1	<1	<3
	SCS	3/26/03	<100	–	–	<0.5	<1	<1	<3
	SCS	6/5/03	<100	–	–	<0.5	<1	<1	<3
	SCS	9/30/03	<100	–	–	<0.5	<1	<1	<3
	SCS	12/9/03	<100	–	–	<0.5	<1	<1	<3
	SCS	3/25/04	<100	–	–	<0.5	<1	<1	<3
	SCS	3/9/05	<100	–	–	<0.5	<1	<1	<3
MW4	Giles	4/15/98	83	–	–	<1	<1	<1	<3
OW1	SCS	6/6/02	<100	–	–	<0.5	<1	<1	<3
	SCS	9/9/02	<100	–	–	<0.5	<1	<1	<2
	SCS	3/26/03	<100	–	–	<0.5	<1	<1	<2
	SCS	6/5/03	<100	–	–	<0.5	<1	<1	<2
	SCS	9/30/03	<100	–	–	<0.5	<1	<1	<3
	SCS	12/9/03	<100	–	–	<0.5	<1	<1	<3
	SCS	3/25/04	<100	–	–	<0.5	<1	<1	<3
	SCS	3/9/05	<100	–	–	<0.5	<1	<1	<3
	Migizi	8/27/14	<50.0	<50.0	<100	<1.00 ^f	<1.00 ^f	<1.00 ^f	<2.00 ^f
	EPI	6/8/19	<100	–	–	<1 ^g	<1 ^g	<1 ^g	<3 ^g


Table 2
Summary of Historical and Current Groundwater Analytical Data
Revised Remedial Investigation, Feasibility Study, and Cleanup Action Plan
Meeker Former Gas Station Site
105 Washington Avenue N, Kent, WA

Sample Location	Consultant	Sample Date	GRO ^a	DRO ^b	ORO ^b	Benzene ^c	Toluene ^c	Ethyl-Benzene ^c	Total Xylenes ^c
OW2	SCS	6/6/02	<100	—	—	<0.5	<1	<1	<3
	SCS	9/9/02	<100	—	—	<0.5	<1	<1	<2
	SCS	3/26/03	<100	—	—	<0.5	<1	<1	<2
	SCS	6/5/03	<100	—	—	<0.5	<1	<1	<2
	SCS	9/30/03	<100	—	—	<0.5	<1	<1	<3
	SCS	12/9/03	<100	—	—	<0.5	<1	<1	<3
	SCS	3/25/04	<100	—	—	<0.5	<1	<1	<3
	SCS	3/9/05	<100	—	—	<0.5	<1	<1	<3
	Migizi	8/27/14	<50.0	<50.0	<100	<1.00 ^f	<1.00 ^f	<1.00 ^f	<2.00 ^f
	EPI	6/8/19	<100	—	—	<1 ^g	<1 ^g	<1 ^g	<3 ^g
OW3	SCS	6/6/02	4,550	—	—	125	2.62	119	46.4
	SCS	9/9/02	5,030	—	—	114	3	162	166
	SCS	12/9/02	1,790	—	—	58	<2	2.4	11.7
	SCS	3/26/03	4,110	—	—	135	<2	154	54
	SCS	6/5/03	4,790	—	—	119	<10	114	76
	SCS	9/30/03	3,360	—	—	106	2	102	74.75
	SCS	12/9/03	3,800	—	—	111	1.62	115	73.56
	SCS	3/25/04	4,660	—	—	179	<1	88	45
	SCS	3/9/05	4,340	—	—	138	2.72	98.6	67.18
	Migizi	8/27/14 ^d	2,450	<50.0 ^e	<100	14.9^f	<1.00 ^f	6.10^f	1.39^f
	EPI	10/31/18	1,300	—	—	1.1^g	<1 ^g	4.0^g	4.3^g
	EPI	6/8/19	940	—	—	1.4^g	3.1^g	1.6^g	3.3^g
MTCA Method A Cleanup Levels for Groundwater^h			800/1,000ⁱ	500	500	5	1,000	700	1,000

Notes:

All results presented in micrograms per liter (µg/L).

Bold Bold results indicate that the compound was detected.

 Shaded cells indicate that the compound was detected at a concentration greater than the cleanup level.

a Gasoline-range organics (GRO) analyzed by WTPH-G (prior to 2000) and NWTPH-Gx (2000 and later).

b Diesel-range (DRO) and oil-range organics (ORO) analyzed by NWTPH-Dx.

c Benzene, toluene, ethylbenzene, and total xylenes (BTEX) analyzed by EPA Method 8020 (Jan. 1998) and 8021B (Mar. 1998 and later).

d Sample also analyzed for semivolatile organic compounds by EPA Method 8270, which indicated detectable naphthalene (32.3 µg/L), 1-methylnaphthalene (30.3 µg/L), and 2-methylnaphthalene (9.22 µg/L). Volatile analysis by EPA Method 8260 also indicated detectable isopropylbenzene (48.6 µg/L), n-propylbenzene (111 µg/L), 1,2,3-trichloropropane (3.94 µg/L), 1,2-dibromo-3-chloropropane (23.5 µg/L), and naphthalene (64.8 µg/L) in the sample from OW3.

e Lab analysis indicated the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24) at a concentration of

f BTEX analyzed by EPA Method 8260.

g BTEX analyzed by EPA Method 8021B.

h Model Toxics Control Act (MTCA) cleanup levels from Table 720-1 in Chapter 173-340-900.

i Cleanup level is 800 µg/L when benzene is present, and 1,000 µg/L when benzene is not detected.

-- Not analyzed.

Table 3
Groundwater Elevation Data Summary – June 2002 through June 2019
Revised Remedial Investigation, Feasibility Study, and Cleanup Action Plan
Meeker Former Gas Station Site
105 Washington Avenue N, Kent, WA

Well ID	Date	Top of Casing Elevation ^a	Depth to Water ^b	Relative Water Table Elevation ^c
OW1	6/6/02	99.78	7.91	91.87
	9/9/02	99.78	9.45	90.33
	12/9/02	99.78	11.08	88.70
	3/26/03	99.78	8.20	91.58
	6/5/03	99.78	9.01	90.77
	9/30/03	99.78	9.56	90.22
	12/9/03	99.78	8.58	91.20
	3/25/04	99.78	8.19	91.59
	3/9/05	99.78	9.11	90.67
	6/8/19	41.08	6.94	34.14
OW2	6/6/02	99.82	8.03	91.79
	9/9/02	99.82	9.52	90.30
	12/9/02	99.82	11.21	88.61
	3/26/03	99.82	8.31	91.51
	6/5/03	99.82	9.10	90.72
	9/30/03	99.82	9.83	89.99
	12/9/03	99.82	8.68	91.14
	3/25/04	99.82	8.23	91.59
	3/9/05	99.82	9.25	90.57
	6/8/19	42.65	8.47	34.18
OW3	6/6/02	99.25	7.46	91.79
	9/9/02	99.25	9.09	90.16
	12/9/02	99.25	10.75	88.50
	3/26/03	99.25	7.72	91.53
	6/5/03	99.25	8.65	90.60
	9/30/03	99.25	9.53	89.72
	12/9/03	99.25	8.21	91.04
	3/25/04	99.25	7.74	91.51
	3/9/05	99.25	8.72	90.53
	6/8/19	42.08	7.79	34.29
MW3	6/6/02	100.21	8.27	91.94
	9/9/02	100.21	10.06	90.15
	12/9/02	100.21	11.67	88.54
	3/26/03	100.21	8.65	91.56
	6/5/03	100.21	9.61	90.60
	9/30/03	100.21	10.51	89.70
	12/9/03	100.21	9.17	91.04
	3/25/04	100.21	8.61	91.60
	3/9/05	100.21	9.63	90.58

Table 3
Groundwater Elevation Data Summary – June 2002 through June 2019
Revised Remedial Investigation, Feasibility Study, and Cleanup Action Plan
Meeker Former Gas Station Site
105 Washington Avenue N, Kent, WA

Well ID	Date	Top of Casing Elevation ^a	Depth to Water ^b	Relative Water Table Elevation ^c
Temporary Wells (EPI - 2019)				
DPT-1	6/8/19	41.94	7.81	34.13
DPT-2	6/8/19	42.31	8.31	34.00
DPT-3	6/8/19	41.83	7.50	34.33

Notes:

- a Top of casing elevation 2002 through 2005 surveyed by SCS Engineers in June 2002, relative to an arbitrary benchmark with an elevation of 100 feet. Top of casing elevation in 2019 surveyed by EPI on June 8, 2019, relative to North American Vertical Datum of 1988.
- b Depth to water measured in feet from surveyed point at top of well casing.
- c Water Table Elevation = (Top of Casing Elevation) - (Depth to Water)

Table 4
Residual Petroleum Hydrocarbons Remaining in Soil
Revised Remedial Investigation, Feasibility Study, and Cleanup Action Plan
Meeker Former Gas Station Site
105 Washington Avenue N, Kent, WA

Sample Location	Sample ID	Sample Depth (feet)	Sample Date	TPH ^a	GRO ^b	DRO ^c	ORO ^c	Benzene ^d	Toluene ^d	Ethyl-benzene ^d	Total Xylenes ^d
Phase II Environmental Site Assessment (SCE Engineers – 1991)											
BH1	BH1-10'	10	4/25/91	<10	--	--	--	--	--	--	--
	BH1-15'	15	4/25/91	<10	--	--	--	--	--	--	--
BH2	BH2-15'	15	4/25/91	<10	--	--	--	--	--	--	--
BH3	BH3-10'	10	4/25/91	<10	--	--	--	--	--	--	--
	BH3-15'	15	4/25/91	<10	--	--	--	--	--	--	--
BH4	BH4-10'	10	4/25/91	47^e	--	--	--	--	--	--	--
	BH4-15'	15	4/25/91	44^e	--	--	--	--	--	--	--
Phase II Environmental Site Assessment (Giles Engineering Associates – 1998)											
B2	B2-7'	7	1/26/98	--	--	<26	<51	--	--	--	--
B3/MW3	B3-7'	7	1/26/98	--	6	--	--	<0.1	<0.1	<0.1	<0.3
B9	B9-4'	4	3/11/98	--	700	--	--	<0.5	<0.5	5.7	9.8
B10	B10-6'	6	3/11/98	--	27	--	--	<0.1	<0.1	0.2	0.3
B11	B11	NR	3/11/98	--	<5	--	--	<0.1	<0.1	<0.1	<0.3
B12	B12	NR	3/11/98	--	<5	--	--	<0.1	<0.1	<0.1	<0.3
Supplemental Assessments (SCS Engineers – 2000 and 2002)											
DP-13	DP13-11'	11	4/6/00	--	85	--	--	<0.05	0.079	1.3	3.1
SP1	SP1-2.8'	2.8	1/14/02	--	24	<20	<50	<0.02	<0.05	<0.05	<0.05
	SP1-8.5'	8.5	1/14/02	--	<5	<20	<50	<0.02	<0.05	<0.05	<0.05
SP3	SP3-4'	4	1/14/02	--	64	<20	<50	<0.02	<0.05	0.19	0.16
	SP3-10'	10	1/14/02	--	9.4	<20	<50	<0.02	<0.05	<0.05	<0.05
SP4	SP4-7.5'	7.5	1/14/02	--	<5	<20	<50	<0.02	<0.05	<0.05	<0.05
SP5	SP5-3'	3	1/14/02	--	<5	<20	<50	<0.02	<0.05	<0.05	<0.05
	SP5-8'	8	1/14/02	--	<5	<20	<50	<0.02	<0.05	<0.05	<0.05
SP6	SP6-3'	3	1/14/02	--	8.8	<20	<50	<0.02	<0.05	<0.05	<0.05
	SP6-9.5'	9.5	1/14/02	--	<5	<20	<50	<0.02	<0.05	<0.05	<0.05

Table 4
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Meeker Former Gas Station Site
105 Washington Avenue N, Kent, WA

Sample Location	Sample ID	Sample Depth (feet)	Sample Date	TPH ^a	GRO ^b	DRO ^c	ORO ^c	Benzene ^d	Toluene ^d	Ethyl-benzene ^d	Total Xylenes ^d
Remedial Excavation (SCS Engineers – 2002)											
N Sidewall	A3south-3'	3	4/22/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05
NW Sidewall	B2-3'	3	4/22/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05
N Floor	B2-7'	7	4/19/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05
NE Sidewall	B4east-3'	3	4/22/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05
W Sidewall	C0SE-2'	2	4/22/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05
E Sidewall	C4-7'	7	4/19/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05
SW Sidewall	D0east-2'	2	4/22/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05
SW Excavation	D1south-2'	2	4/22/02	--	840	--	--	<0.02	<0.05	0.28	11
S Sidewall	D2-3'	3	4/19/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05
S Sidewall	D3-5'	5	4/19/02	--	140	--	--	<0.02	<0.05	0.80	0.54
S Floor	D3-7.5'	7.5	4/19/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05
SE Sidewall	D4-7.5'	7.5	4/19/02	--	<5	--	--	<0.02	<0.05	<0.05	<0.05
Soil and Groundwater Assessment (SCS Engineers – 2002)											
OW1	OW1-5'	5	5/17/02	--	<4.22	--	--	<0.022	<0.043	<0.043	<0.085
OW2	OW2-5'	5	5/17/02	--	<4.83	--	--	<0.024	<0.049	<0.049	<0.097
OW3	OW3-5'	5	5/17/02	--	271	--	--	0.168	0.084	1.5	2.883
	OW3-10'	10	5/17/02	--	31	--	--	0.091	0.015	0.104	0.181
	OW3-15'	15	5/17/02	--	<5.04	--	--	<0.026	<0.051	<0.051	0.007
Site Investigation (Environmental Partners, Inc. – 2015)											
B-7	B-7:12	12	11/6/15	--	<2	--	--	<0.02	<0.02	<0.02	<0.06
B-9	B-9:5	5	11/6/15	--	<2	--	--	<0.02	<0.02	<0.02	<0.06
B-10	B-10:5	5	11/12/15	--	<2	--	--	<0.02	<0.02	<0.02	<0.06


Table 4
Residual Petroleum Hydrocarbons Remaining in Soil
Revised Remedial Investigation, Feasibility Study, and Cleanup Action Plan
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Sample Location	Sample ID	Sample Depth (feet)	Sample Date	TPH ^a	GRO ^b	DRO ^c	ORO ^c	Benzene ^d	Toluene ^d	Ethylbenzene ^d	Total Xylenes ^d
Soil and Groundwater Assessment (Environmental Partners, Inc. – 2019)											
DPT-1	DPT-1:7.5	7.5	6/8/19	--	<5	--	--	<0.02	<0.02	<0.02	<0.06
DPT-2	DPT-2:7	7	6/8/19	--	<5	--	--	<0.02	<0.02	<0.02	<0.06
DPT-3	DPT-3:9	9	6/8/19	--	130	--	--	<0.02	0.24	0.31	1.6
MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses^f				NVE	30/100^g	2,000	2,000	0.03	7	6	9

Notes:

All results presented in milligrams per kilogram (mg/kg).

Bold Bold results indicate that the compound was detected.

 Shaded cells indicate that the compound was detected at a concentration greater than the cleanup level.

a Total petroleum hydrocarbons (TPH) analyzed by EPA Method 8015, unless otherwise noted.

b Gasoline-range organics (GRO) analyzed by WTPH-G (prior to 2000) and NWTPH-Gx (2000 and later).

c Diesel-range (DRO) and oil-range organics (ORO) analyzed by NWTPH-Dx.

d Benzene, toluene, ethylbenzene, and total xylenes (BTEX) analyzed by EPA Method 8020 (1998) and 8021B (2000 and later).

e Analyzed by EPA Method 418.1.

f Model Toxics Control Act (MTCA) cleanup levels from Table 740-1 in Chapter 1732-340-900.

g Cleanup level is 30 mg/kg when benzene is present, and 100 mg/kg when benzene is not detected.

-- Not analyzed.

NR Not reported.

NVE No value established.

Table 5
Remedial Alternatives Evaluation
Revised Remedial Investigation, Feasibility Study, and Cleanup Action Plan
Meeker Former Gas Station Site
105 Washington Avenue N, Kent, WA

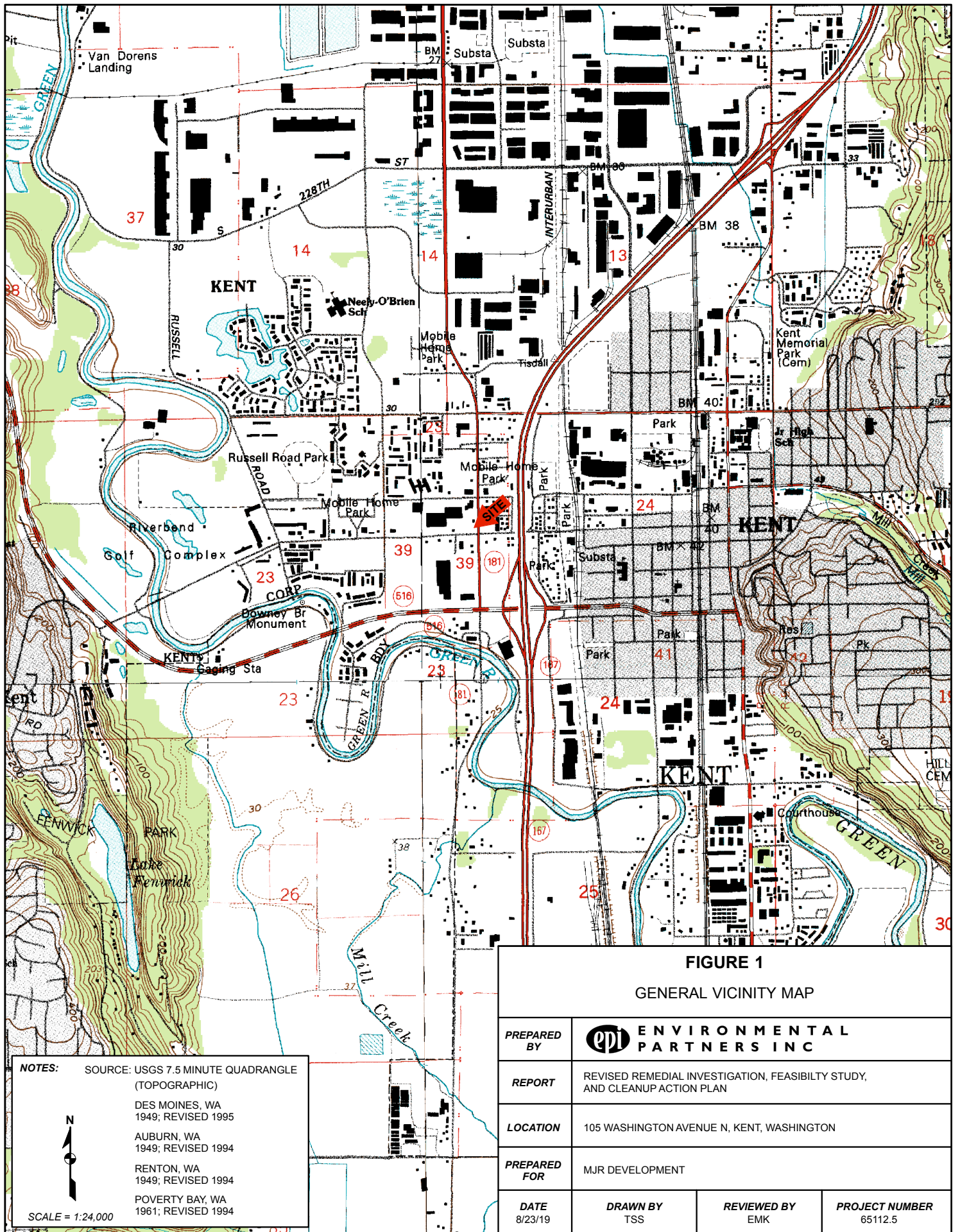
	Alternative 1		Alternative 2		Alternative 3	
Criteria	Institutional Controls	Score ^a	Excavation of All Remaining Impacted Soil	Score ^a	In Situ Treatment of Impacted Soil and Groundwater	Score ^a
Description/Issues	Implement institutional controls to place a deed restriction on the impacted property. This would not require any intrusive work at the Site.		Excavate all remaining impacted soil and transport to an offsite facility for disposal; perform four quarters of groundwater compliance monitoring. Will require temporary rerouting of utilities that are present within affected utility corridor and replacing utilities once soil excavation is complete.		Apply soil vapor extraction (SVE) technology to remove and reduce soil contaminant concentrations; inject oxygen release compound (ORC) into groundwater to enhance aerobic biological degradation of dissolved contaminants. Soil remediation effectiveness limited to SVE radius of influence.	
Protectiveness	Overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, time required to reduce risk at the facility and attain cleanup standards, on-site and off-site risks resulting from implementing the alternative, and improvement of the overall environmental quality.					
Overall protectiveness	Protective if maintained	2	Protective when complete	5	Protective when complete	3
Reduces existing risks	Reduces risks when implemented	3	Reduces risks when implemented	5	Reduces risks when implemented	4
Time required to reduce risk	Longer duration to reduce risks	1	Shortest duration to reduce risks	5	Moderate duration to reduce risks	3
On-Site risks	Reduces risks with lower level of certainty	1	Reduces risks with very high level of certainty	5	Reduces risks with moderate to high level of certainty	3
Off-Site risks	Reduces risks with lower level of certainty	1	Reduces risks with very high level of certainty	5	Reduces risks with moderate to high level of certainty	3
Improvement in environmental quality	No immediate change in environmental quality	1	High level of improvement	5	High level of improvement	4
Criterion Score		1.5		5.0		3.3
Permanence	The degree to which the alternative permanently reduces the toxicity, mobility or volume of hazardous substances, including the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of waste treatment process, and the characteristics and improvement of the overall environmental quality.					
Reduces toxicity, mobility, and volume	Reduces toxicity, mobility, and volume slowly	1	Reduces toxicity, mobility, and volume rapidly	5	Reduces toxicity, mobility and volume moderately	3
Degree of irreversibility	Low degree of irreversibility	1	Irreversible	5	Irreversible	4
Waste characteristics	No waste stream	5	Generates soil waste stream	1	Generates air waste stream	2
Criterion Score		2.3		3.7		3.0
Long-Term Effectiveness	Long-term effectiveness includes the degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time hazardous substances are expected to remain on-site at concentrations that exceed cleanup levels, the magnitude of residual risk with the alternative in place, and the effectiveness of controls required to manage treatment residues or remaining wastes. The following types of cleanup action components may be used as a guide, in descending order, when assessing the relative degree of long-term effectiveness: Reuse or recycling; destruction or detoxification; immobilization or solidification; on-site or off-site disposal in an engineered, lined and monitored facility; on-site isolation or containment with attendant engineering controls; and institutional controls and monitoring.					
Degree of Certainty	Moderately certain	2	Highly certain	5	Moderately to highly certain	4
Reliability	Moderately reliable	2	Highly reliable	5	Moderately to highly reliable	4
Residual Risk	Moderate	2	Low	5	Low to moderate	3
Technology hierarchy	Low	1	Low rank due to offsite soil disposal	2	Moderate to high	3
Criterion Score		1.8		4.3		3.5
Short-Term Risk Management	The risk to human health and the environment associated with the alternative during construction and implementation, and the effectiveness of measures that will be taken to manage such risks.					
During construction and implementation	Low risks	5	Very high risks associated with excavation and moving of utilities	1	Low to moderate risks associated with drilling and trenching near buried utilities	2
Effectiveness of risk management	Very effective	5	Moderately effective	2	Moderately effective	2
Criterion Score		5.0		1.5		2.0

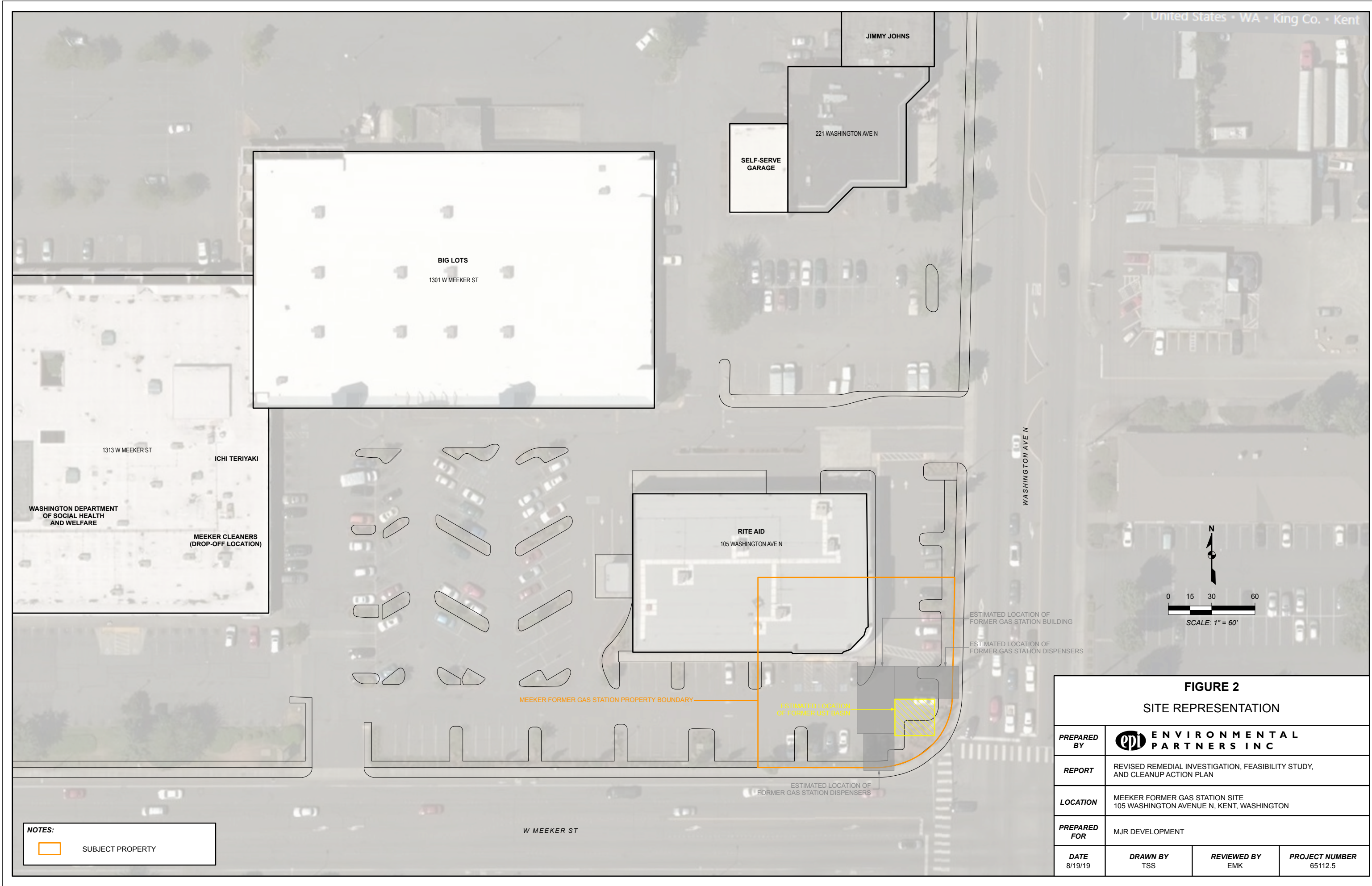
Table 5
Remedial Alternatives Evaluation
Revised Remedial Investigation, Feasibility Study, and Cleanup Action Plan
Meeker Former Gas Station Site
105 Washington Avenue N, Kent, WA

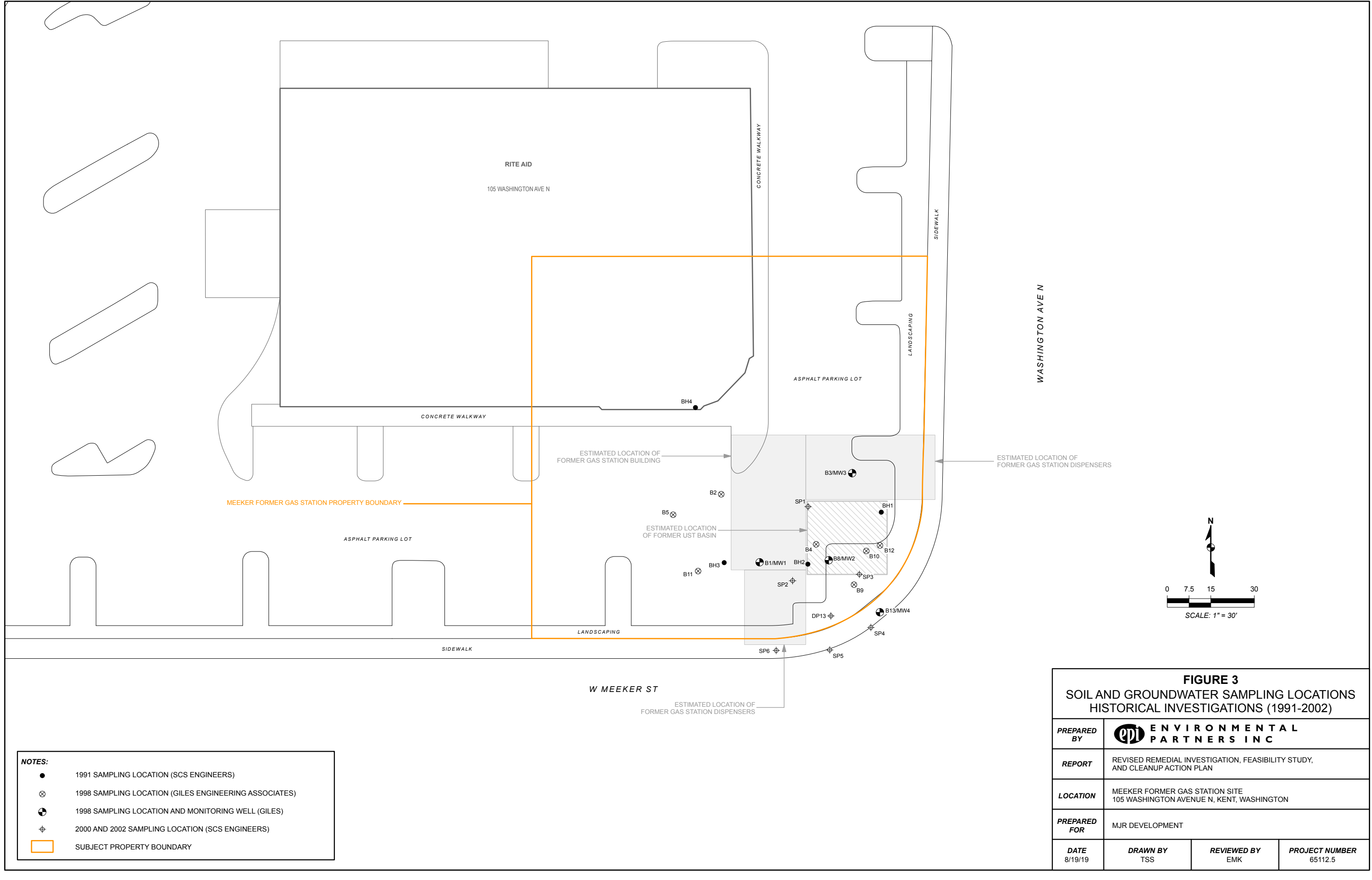
	Alternative 1		Alternative 2		Alternative 3	
Criteria	Institutional Controls	Score ^a	Excavation of All Remaining Impacted Soil	Score ^a	In Situ Treatment of Impacted Soil and Groundwater	Score ^a
Description/Issues	Implement institutional controls to place a deed restriction on the impacted property. This would not require any intrusive work at the Site.		Excavate all remaining impacted soil and transport to an offsite facility for disposal; perform four quarters of groundwater compliance monitoring. Will require temporary rerouting of utilities that are present within affected utility corridor and replacing utilities once soil excavation is complete.		Apply soil vapor extraction (SVE) technology to remove and reduce soil contaminant concentrations; inject oxygen release compound (ORC) into groundwater to enhance aerobic biological degradation of dissolved contaminants. Soil remediation effectiveness limited to SVE radius of influence.	
Implementability	Ability to be implemented including consideration of whether the alternative is technically possible, availability of necessary off-site facilities, services and materials, administrative and regulatory requirements, scheduling, size, complexity, monitoring requirements, access for construction operations and monitoring, and integration with existing facility operations and other current or potential remedial actions.					
Technically possible	Possible if all affected property owners (Meeker Square property owner and City of Kent) agree to environmental covenant.	5	Possible if utility companies agree to temporarily reroute affected utility lines for implementation of soil excavation.	1	Possible, based on subsurface data; SVE parameters should be evaluated	2
Access	No issues related to access for implementing deed restrictions.	5	Access for construction will be dependent on available space within the parking lot and the adjacent public right-of-way.	1	Access for construction will be dependent on available space within the parking lot and the adjacent public right-of-way.	1
Availability of necessary resources	Readily available	5	Readily available	2	Readily available	4
Scheduling, size, and complexity	Very low complexity; environmental covenant can be prepared within 1 to 2 weeks.	5	High complexity and size due to necessary rerouting of buried utilities; excavation, disposal, and restoration of utilities can be completed in 4 to 6 weeks.	1	Moderate complexity and size; SVE installation and startup can be completed within 4 to 6 weeks; SVE operation may require an air discharge permit.	2
Monitoring requirements	Low	5	Low to moderate	3	High	1
Integration with existing features	High	5	Low due to temporary rerouting of buried utilities	1	Moderate. Will require a small portion of the subject property for installation of aboveground equipment.	2
Criterion Score		5.0		1.5		2.0
Public Concerns	Whether the community has concerns regarding the alternative and, if so, the extent to which the alternative addresses those concerns. This process includes concerns from individuals, community groups, local governments, tribes, federal and state agencies, or any other organization that may have an interest in or knowledge of the Site.					
Concerns	Potential concerns regarding impacts remaining in soil and groundwater.	4.0	Potential concerns regarding temporary rerouting of utilities, temporary closure of sidewalk and possible lane closure during excavation, use of heavy equipment, dust generation, noise issues, and transport of impacted soil on public roadways.	2.0	Potential concerns regarding drilling and trenching in close proximity to buried utilities, vapor discharges, noise issues, and partial use of the property for placement of system equipment.	3.0
Restoration Time Frame	Determination of whether a cleanup action provides for a reasonable restoration time frame based on criteria in WAC 173-340-360(4)(b).					
Time Frame	Moderate time frame	1.0	Shorter time frame	5.0	Moderate to shorter time frame	3.0
TOTAL SCORE	20.6		22.9		19.8	
Conceptual Level Cost	\$20,000		\$900,000		\$500,000	

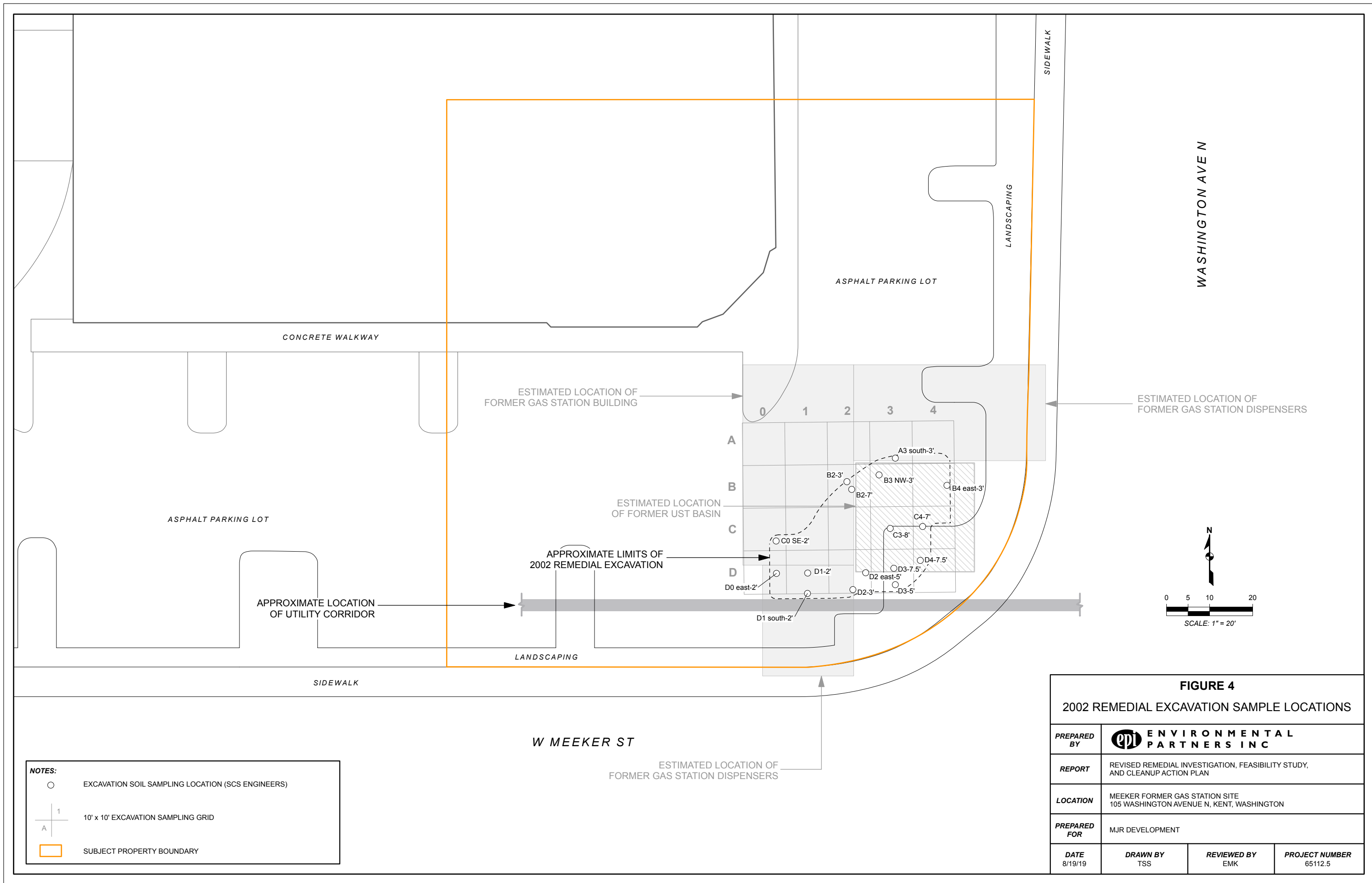
Note:
a Each sub-criterion is scored from 5 (best) to 1 (worst) based on the perceived benefit; the total criterion score is the average of the associated sub-criterion scores.

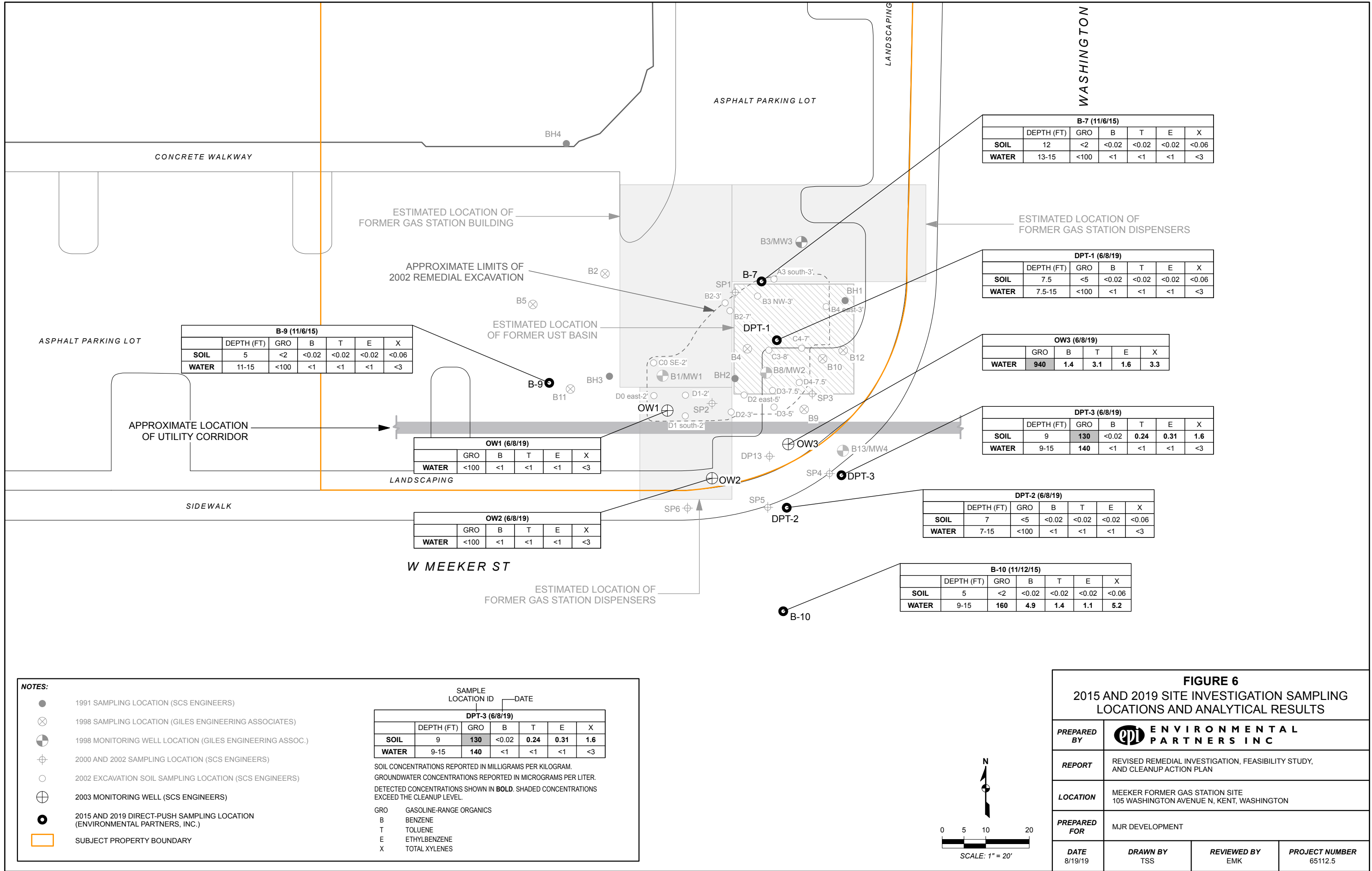
Figures

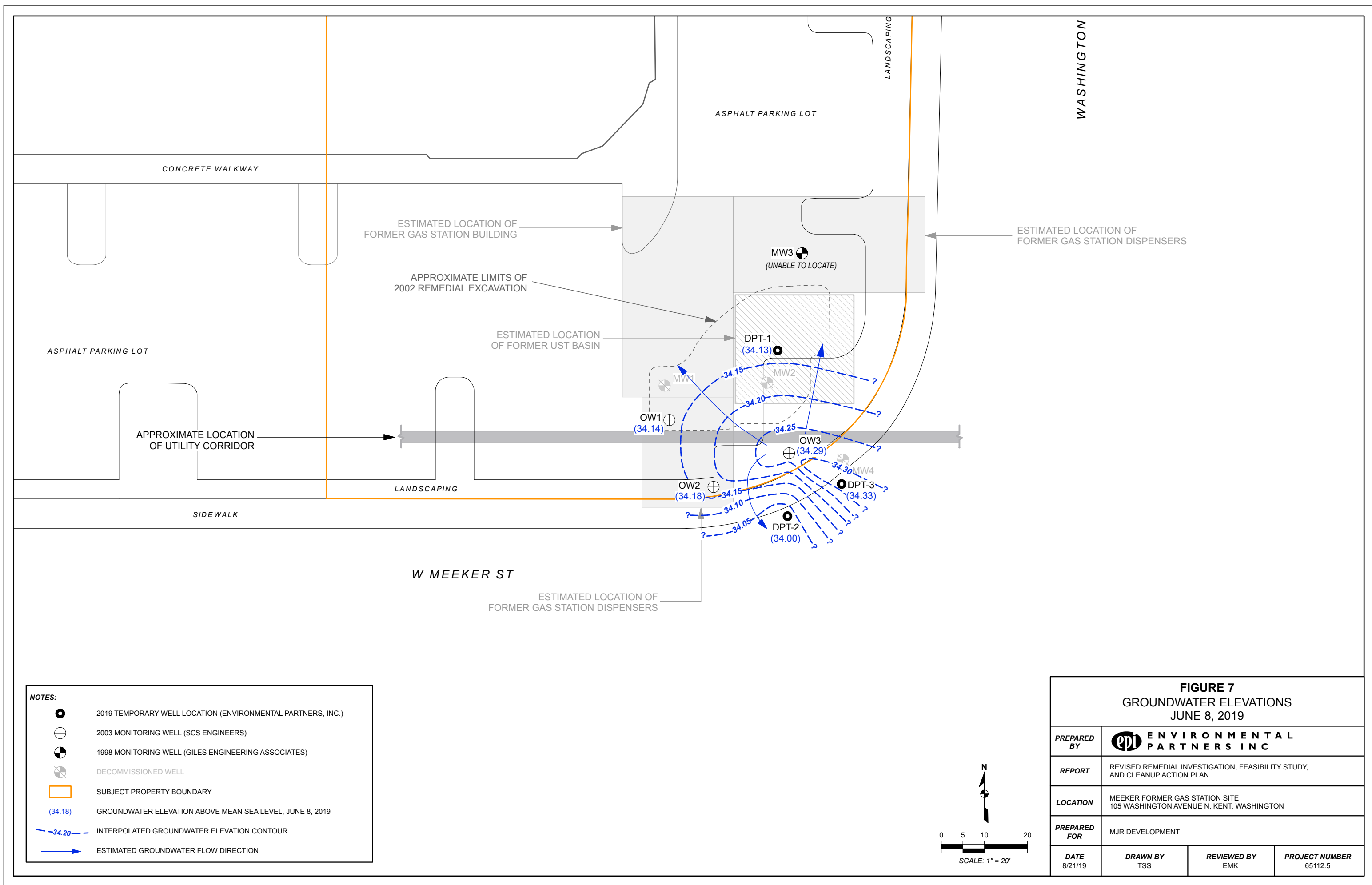


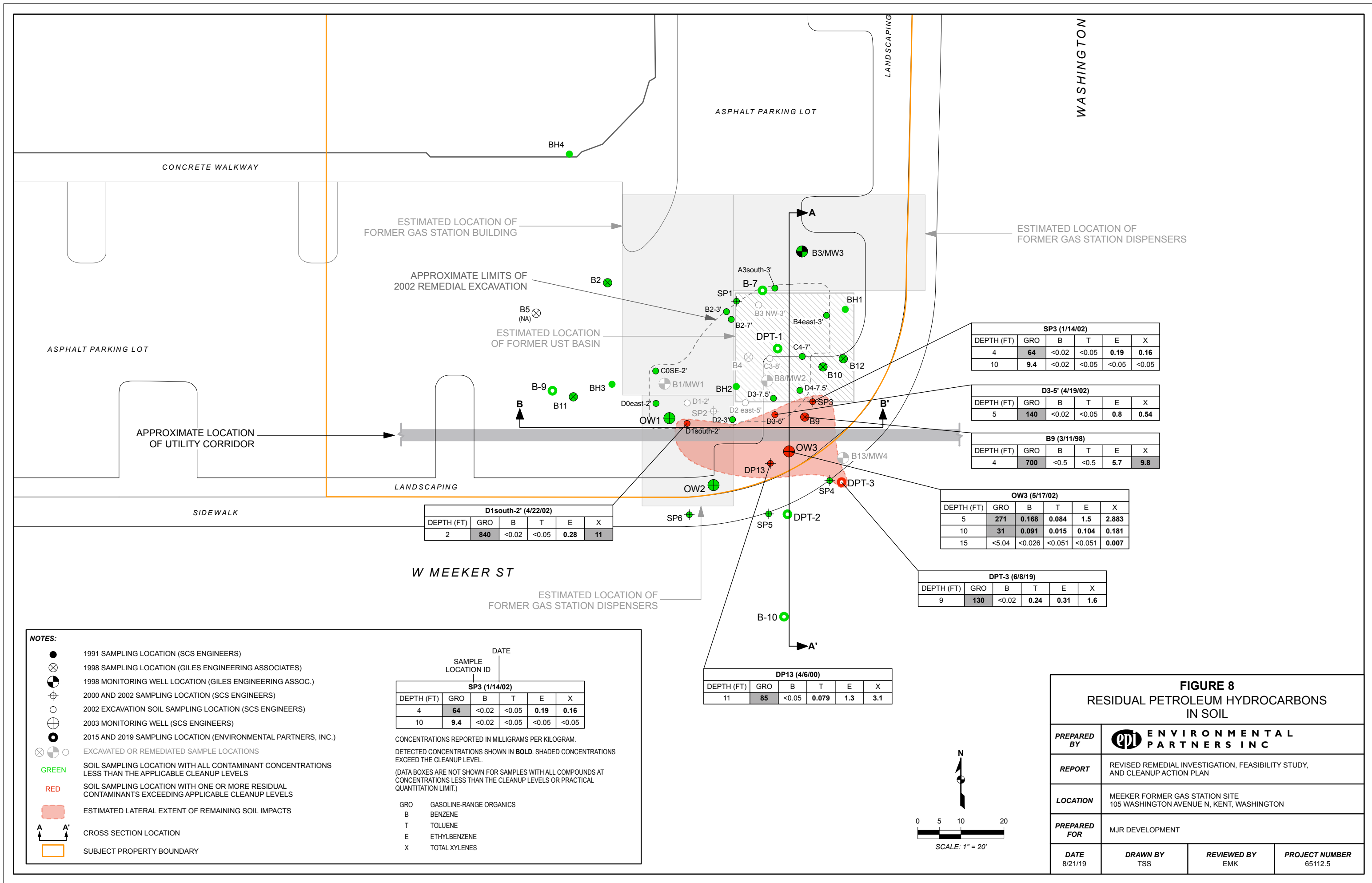


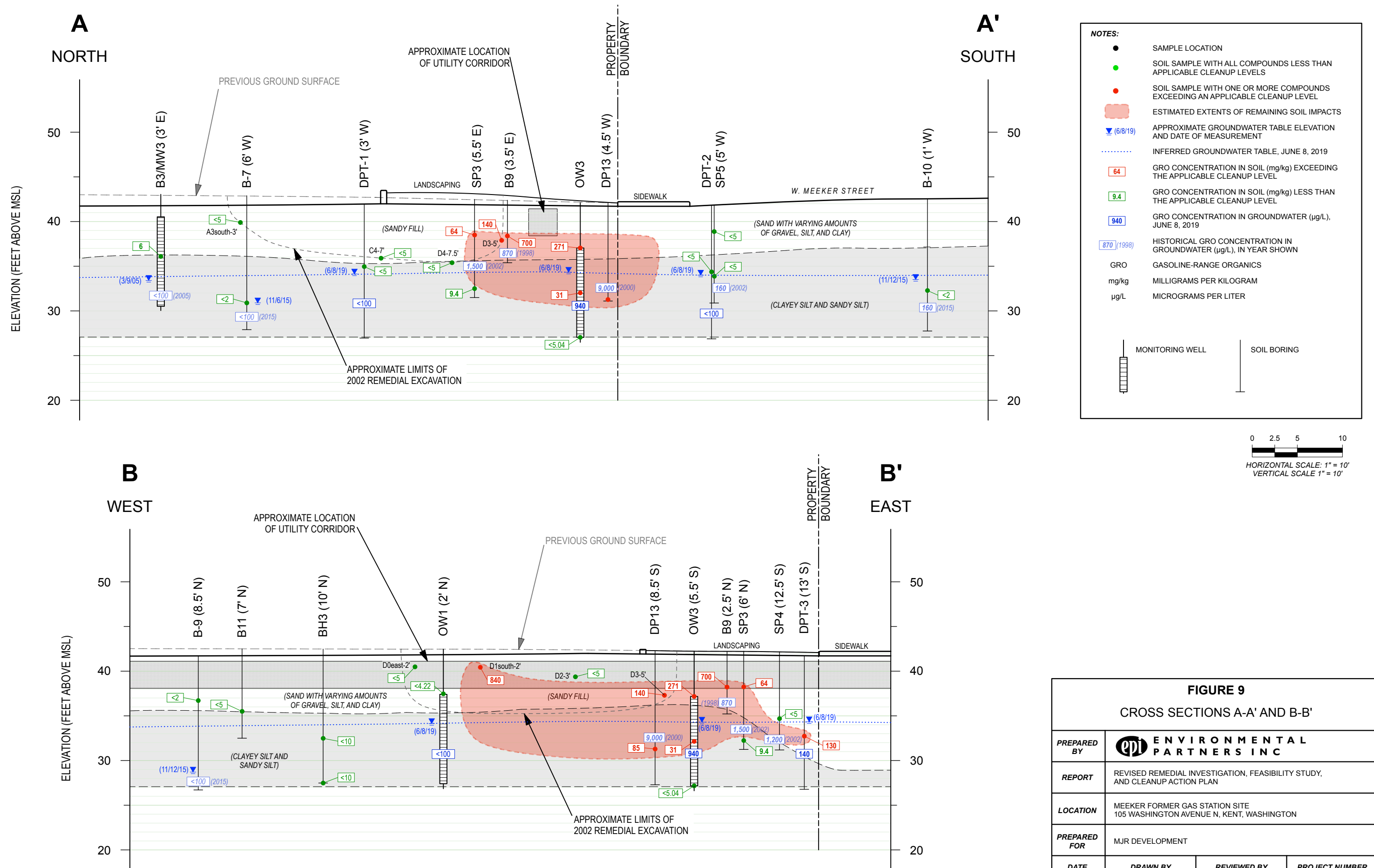


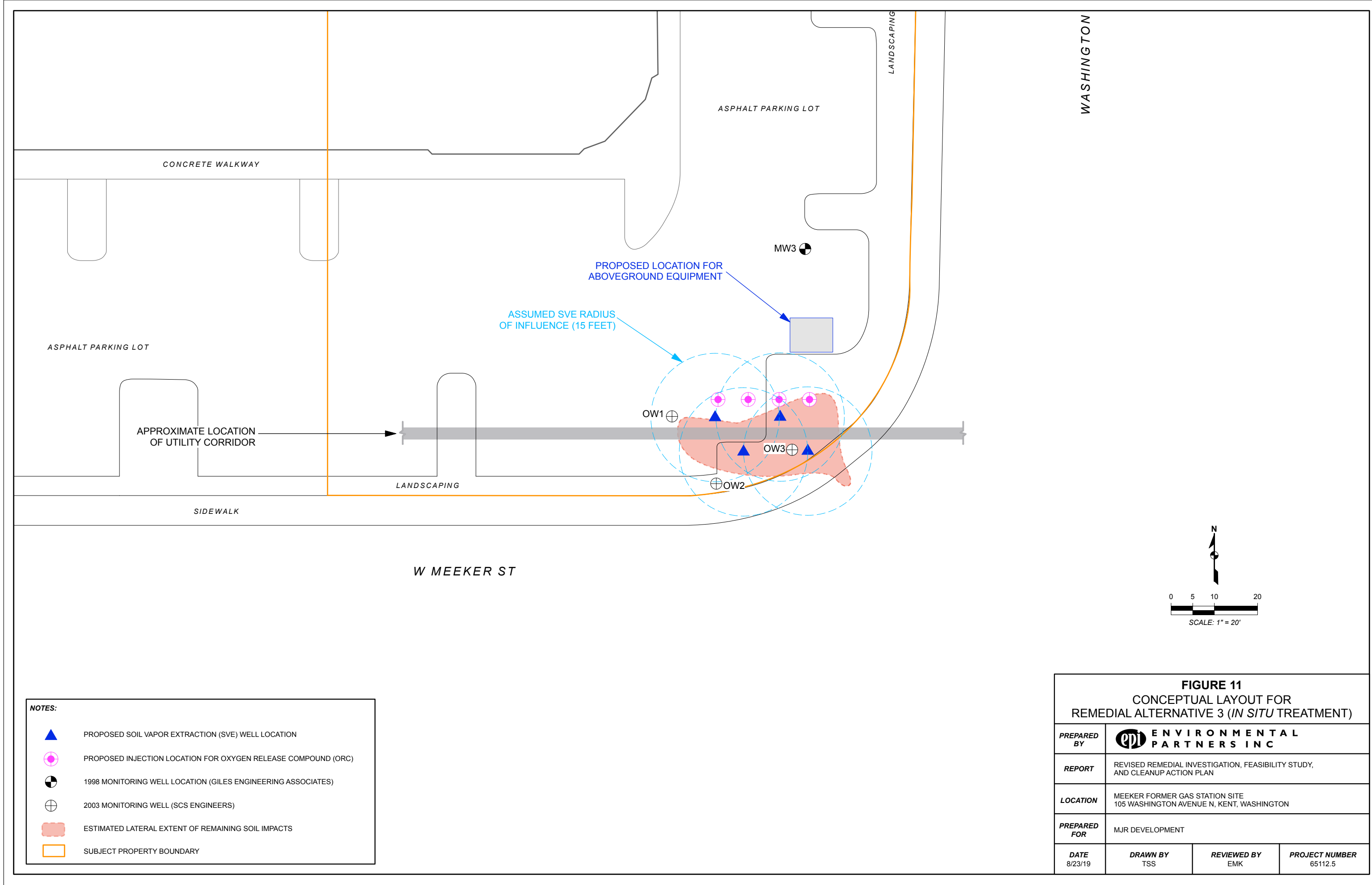






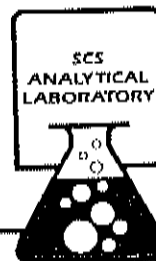






Attachment A
Copies of Analytical Laboratory Reports

RECEIVED
MAY 13 1991
S.C.S. ENGINEERS



2860 WALNUT AVENUE
LONG BEACH, CALIFORNIA 90806
(213) 595-9324
FAX (213) 595-6709

MEMO

To: Greg Helland

From: Lam V. Ho

May 9, 1991

Job No.: 0491003.00

Page 1 of 1

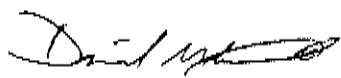
LABORATORY REPORT

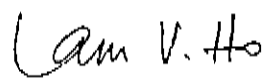
Samples: Thirteen (13) soil samples from Principal - Phase I & II, received 04/26/91 and analyzed 05/06/91 and 05/07/91. Eight to be analyzed, the remainder to be archived.

Sample ID	EPA 8015 -----mg/kg-----
18182 BH1-10	ND
18183 BH1-15	ND
18185 BH2-5	1800(D)
18186 BH2-15	ND
18189 BH3-10	ND
18190 BH3-15	ND
Detection Limit	10

Sample ID	EPA 418.1 -----mg/kg-----
18192 BH4-10	47
18193 BH4-15	44
Detection Limit	10

ND = Not Detected
D = Diesel


David Mikesell
Chemist


Lam V. Ho PhD, REP
Laboratory Director

princl.rep

Quality Assurance Addendum Report
Page 1 of 2

EPA 8015 Diesel

Matrix Spikes

Lab ID	Diesel
	----% Recovery----
6421-3 Spk.	110
6421-3 Spk. Dup.	110
% RSD	0
Control Limits	33/94
# Outside Limits	2
% Completeness	0

EPA 418.1

Matrix Spikes

Lab ID	-% Recovery-
6448-11 Spk.	106
6448-11 Dup. Spk.	103
% RSD	2.9
Control limits	56/126
# Outside limits	0
% Completeness	100

Quality Assurance Addendum Report
Page 2 of 2

Notes:

Note that Matrix Spikes are not project specific. Therefore, spike information shown on this report may not be from the same project; however, they were analyzed in the same analytical batch.

Definitions:

Spike: A sample from the analytical batch which has been spiked with the parameter(s) of interest at a known concentration.

Spike Duplicate: A duplicate of the spiked sample.

Mean: The average spike recoveries, from both spikes and spike duplicates.

% RSD: Relative Standard Deviation between a Spike and a Spike Duplicate.

$$\%RSD = [(Spike - Spk. Dup.) / Mean] * 100$$

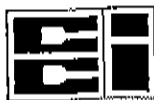
Control limits are calculated by SCS Analytical Laboratory for internal use from existing spike data. Control limits are found by calculating three standard deviations above and below the mean of the population.

WTPH-G with BTEX

WTPH-G is a method extracted with Methanol. Quantification is conducted utilizing gas chromatography (GC) coupled with a flame ionization detector (FID). The sample is held in a hollow "sparge" tube. A purified, inert gas (helium) is bubbled through the sample, which efficiently extracts the purgeable organic analytes from the aqueous phase to the vapor phase. The vapor phase is then passed through a sorbent trap where the analytes are collected. After the extraction is complete, the trap is back-flushed and heated, which effectively desorbs the purgeable analytes from the trap and flushes them onto the GC column. Analysis is primarily restricted petroleum hydrocarbons in the C_3 to C_{12} (gasoline) range.

Total Lead by EPA Method 7420

Soil samples are digested in concentrated nitric acid. The resulting extract is analyzed by flame atomic absorption spectroscopy with direct aspiration.



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CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 1/30/98
CCIL JOB #: 801070
CCIL SAMPLE #: 2
DATE RECEIVED: 1/27/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E 9801007
CLIENT SAMPLE ID: B1 S2-6

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	7	MG/KG	100MG/KG	1/29/98	AMR
BENZENE	EPA-8020	ND(<0.1)	MG/KG	.5MG/KG	1/29/98	AMR
TOLUENE	EPA-8020	ND(<0.1)	MG/KG	40MG/KG	1/29/98	AMR
ETHYLBENZENE	EPA-8020	ND(<0.1)	MG/KG	20MG/KG	1/29/98	AMR
XYLENES	EPA-8020	ND(<0.3)	MG/KG	20MG/KG	1/29/98	AMR

* "ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

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APPROVED BY: 

CERTIFICATE OF ANALYSIS

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11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 1/30/98
CCIL JOB #: 801070
CCIL SAMPLE #: 4
DATE RECEIVED: 1/27/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E 9801007
CLIENT SAMPLE ID: B1 H2O

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<50)	UG/L	1000 UG/L	1/29/98	AMR
BENZENE	EPA-8020	ND(<1)	UG/L	5 UG/L	1/29/98	AMR
TOLUENE	EPA-8020	ND(<1)	UG/L	40 UG/L	1/29/98	AMR
ETHYLBENZENE	EPA-8020	ND(<1)	UG/L	30 UG/L	1/29/98	AMR
XYLENES	EPA-8020	ND(<3)	UG/L	20 UG/L	1/29/98	AMR

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11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 1/30/98
CCIL JOB #: 801070
CCIL SAMPLE #: 6
DATE RECEIVED: 1/27/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E 9801007
CLIENT SAMPLE ID: B2 S2-7

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-DIESEL RANGE	WTPH-D EXT	ND(<26)	MG/KG	200MG/KG	1/28/98	AMR
TPH-OIL RANGE	WTPH-D EXT	ND(<51)	MG/KG	200MG/KG	1/28/98	AMR

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11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 1/30/98
CCIL JOB #: 801070
CCIL SAMPLE #: 9
DATE RECEIVED: 1/27/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E 9801007
CLIENT SAMPLE ID: B3 S2-7

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	6	MG/KG	100MG/KG	1/29/98	AMR
BENZENE	EPA-8020	ND(<0.1)	MG/KG	.5MG/KG	1/29/98	AMR
TOLUENE	EPA-8020	ND(<0.1)	MG/KG	40MG/KG	1/29/98	AMR
ETHYL BENZENE	EPA-8020	ND(<0.1)	MG/KG	20MG/KG	1/29/98	AMR
XYLENES	EPA-8020	ND(<0.3)	MG/KG	20MG/KG	1/29/98	AMR

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APPROVED BY: CRJ



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11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 1/30/98
CCIL JOB #: 801070
CCIL SAMPLE #: 10
DATE RECEIVED: 1/27/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E 9801007
CLIENT SAMPLE ID: B3 WATER

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<50)	UG/L	1000 UG/L	1/29/98	AMR
BENZENE	EPA-8020	ND(<1)	UG/L	5 UG/L	1/29/98	AMR
TOLUENE	EPA-8020	ND(<1)	UG/L	40 UG/L	1/29/98	AMR
ETHYLBENZENE	EPA-8020	ND(<1)	UG/L	30 UG/L	1/29/98	AMR
XYLENES	EPA-8020	ND(<3)	UG/L	20 UG/L	1/29/98	AMR

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11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 1/30/98
CCIL JOB #: 801070
CCIL SAMPLE #: 11
DATE RECEIVED: 1/27/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E 9801007
CLIENT SAMPLE ID: B4 S1-4

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	380	MG/KG	100MG/KG	1/29/98	AMR
BENZENE	EPA-8020	ND(<0.4)	MG/KG	.5MG/KG	1/29/98	AMR
TOLUENE	EPA-8020	0.6	MG/KG	40MG/KG	1/29/98	AMR
ETHYLBENZENE	EPA-8020	2.9	MG/KG	20MG/KG	1/29/98	AMR
XYLENES	EPA-8020	10	MG/KG	20MG/KG	1/29/98	AMR

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11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 1/30/98
CCIL JOB #: 801070
CCIL SAMPLE #: 13
DATE RECEIVED: 1/27/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E 9801007
CLIENT SAMPLE ID: B4 WATER

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	090	UG/L	1000 UG/L	1/29/98	AMR
BENZENE	EPA-8020	1	UG/L	5 UG/L	1/29/98	AMR
TOLUENE	EPA-8020	ND(<1)	UG/L	40 UG/L	1/29/98	AMR
ETHYLBENZENE	EPA-8020	5	UG/L	30 UG/L	1/29/98	AMR
XYLENES	EPA-8020	ND(<3)	UG/L	20 UG/L	1/29/98	AMR

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CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 1/30/98
CCIL JOB #: 801070
CCIL SAMPLE #: 22
DATE RECEIVED: 1/27/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E 9801007
CLIENT SAMPLE ID: B7 H2O

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-DIESEL RANGE	WTPH-D EXT	ND(<250)	UG/L	1000UG/L	1/30/98	AMR
TPH-OIL RANGE	WTPH-D EXT	ND(<500)	UG/L	1000UG/L	1/30/98	AMR

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APPROVED BY:



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LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 1/30/98
CCIL JOB #: 801070

DATE RECEIVED: 1/27/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E 9801007

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID	ANALYTE	SUR ID	% RECV
801070-02	WTPH-G	TFT	116
801070-02	EPA-8020	TFT	101
801070-04	WTPH-G	TFT	119
801070-04	EPA-8020	TFT	101
801070-06	WTPH-D EXT	C25	89
801070-09	WTPH-G	TFT	126
801070-09	EPA-8020	TFT	110
801070-10	WTPH-G	TFT	111
801070-10	EPA-8020	TFT	97
801070-11	WTPH-G	TFT	*
801070-11	EPA-8020	TFT	*
801070-13	WTPH-G	TFT	119
801070-13	EPA-8020	TFT	104
801070-22	WTPH-D EXT	C25	72

* SURROGATE DILUTED OUT OF CALIBRATION RANGE

APPROVED BY: 

CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 2/10/98
CCIL JOB #: 801070
CCIL SAMPLE #: 11
DATE RECEIVED: 1/27/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E 9801007
CLIENT SAMPLE ID: B4 S1-4

AMENDED REPORT WITH ADDITIONAL PARAMETER

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	380	MG/KG	100MG/KG	1/29/98	AMR
BENZENE	EPA-8020	ND(<0.4)	MG/KG	.5MG/KG	1/29/98	AMR
TOLUENE	EPA-8020	0.6	MG/KG	40MG/KG	1/29/98	AMR
ETHYLBENZENE	EPA-8020	2.9	MG/KG	20MG/KG	1/29/98	AMR
XYLENES	EPA-8020	10	MG/KG	20MG/KG	1/29/98	AMR
LEAD	EPA-7420	12	MG/KG		2/9/98	JLB

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DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY:



CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 3/17/98
CCIL JOB #: 803045
CCIL SAMPLE #: 1
DATE RECEIVED: 3/12/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008
CLIENT SAMPLE ID: B8-S1 3/11/98 0949

DATA RESULTS

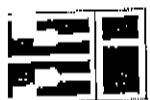
ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	120	MG/KG	100MG/KG	3/16/98	AMR
BENZENE	EPA-8021	ND(<0.5)	MG/KG	.5MG/KG	3/16/98	AMR
TOLUENE	EPA-8021	ND(<0.5)	MG/KG	40MG/KG	3/16/98	AMR
ETHYLBENZENE	EPA-8021	ND(<0.5)	MG/KG	20MG/KG	3/16/98	AMR
XYLENES	EPA-8021	ND(<1.5)	MG/KG	20MG/KG	3/16/98	AMR

* "ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY
CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY.
THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY
DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY: C. V. J.



CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 3/17/98
CCIL JOB #: 803045
CCIL SAMPLE #: 4
DATE RECEIVED: 3/12/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008
CLIENT SAMPLE ID: B8-H2O 3/11/98 1020

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	1600	UG/L	1000 UG/L	3/17/98	AMR
BENZENE	EPA-8021	120	UG/L	5 UG/L	3/17/98	AMR
TOLUENE	EPA-8021	3	UG/L	40 UG/L	3/17/98	AMR
ETHYLBENZENE	EPA-8021	60	UG/L	30 UG/L	3/17/98	AMR
XYLENES	EPA-8021	31	UG/L	20 UG/L	3/17/98	AMR

* "ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

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APPROVED BY: CVA



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LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 3/17/98
CCIL JOB #: 803045
CCIL SAMPLE #: 6
DATE RECEIVED: 3/12/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008
CLIENT SAMPLE ID: B9-S2 3/11/98 1043

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	700	MG/KG	100MG/KG	3/16/98	AMR
BENZENE	EPA-8021	ND(<0.5)	MG/KG	.5MG/KG	3/16/98	AMR
TOLUENE	EPA-8021	ND(<0.5)	MG/KG	40MG/KG	3/16/98	AMR
ETHYLBENZENE	EPA-8021	5.7	MG/KG	20MG/KG	3/16/98	AMR
XYLENES	EPA-8021	9.8	MG/KG	20MG/KG	3/16/98	AMR

* "ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

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APPROVED BY: 



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ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 3/17/98
CCIL JOB #: 803045
CCIL SAMPLE #: 8
DATE RECEIVED: 3/12/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008
CLIENT SAMPLE ID: B9-H20 3/11/98 1101

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION	ANALYSIS	ANALYSIS
				LEVEL***	DATE	BY
TPH-GASOLINE	WTPH-G	970	UG/L	1000 UG/L	3/17/98	AMR
BENZENE	EPA-8021	61	UG/L	5 UG/L	3/17/98	AMR
TOLUENE	EPA-8021	1	UG/L	40 UG/L	3/17/98	AMR
ETHYLBENZENE	EPA-8021	14	UG/L	30 UG/L	3/17/98	AMR
XYLENES	EPA-8021	4	UG/L	20 UG/L	3/17/98	AMR

* "ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

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APPROVED BY: 



CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 3/17/98
CCIL JOB #: 803045
CCIL SAMPLE #: 10
DATE RECEIVED: 3/12/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008
CLIENT SAMPLE ID: B10-S2 3/11/98 1120

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	27	MG/KG	100MG/KG	3/16/98	AMR
BENZENE	EPA-8021	ND(<0.1)	MG/KG	.5MG/KG	3/16/98	AMR
TOLUENE	EPA-8021	ND(<01)	MG/KG	40MG/KG	3/16/98	AMR
ETHYLBENZENE	EPA-8021	0.2	MG/KG	20MG/KG	3/16/98	AMR
XYLENES	EPA-8021	0.3	MG/KG	20MG/KG	3/16/98	AMR

* "ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

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DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY:

CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 3/17/98
CCIL JOB #: 803045
CCIL SAMPLE #: 12
DATE RECEIVED: 3/12/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008
CLIENT SAMPLE ID: B10-H20 3/11/98 1143

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	630	UG/L	1000 UG/L	3/17/98	AMR
BENZENE	EPA-8021	3	UG/L	5 UG/L	3/17/98	AMR
TOLUENE	EPA-8021	ND(<1)	UG/L	40 UG/L	3/17/98	AMR
ETHYLBENZENE	EPA-8021	4	UG/L	30 UG/L	3/17/98	AMR
XYLENES	EPA-8021	ND(<3)	UG/L	20 UG/L	3/17/98	AMR

* "ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

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APPROVED BY: 



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CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 3/17/98
CCIL JOB #: 803045
CCIL SAMPLE #: 14
DATE RECEIVED: 3/12/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008
CLIENT SAMPLE ID: B11-S2 3/11/98 1158

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<5)	MG/KG	100MG/KG	3/16/98	AMR
BENZENE	EPA-8021	ND(<0.1)	MG/KG	.5MG/KG	3/16/98	AMR
TOLUENE	EPA-8021	ND(<0.1)	MG/KG	40MG/KG	3/16/98	AMR
ETHYLBENZENE	EPA-8021	ND(<0.1)	MG/KG	20MG/KG	3/16/98	AMR
XYLENES	EPA-8021	ND(<0.3)	MG/KG	20MG/KG	3/16/98	AMR

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APPROVED BY: 

CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 3/17/98
CCIL JOB #: 803045
CCIL SAMPLE #: 18
DATE RECEIVED: 3/12/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008
CLIENT SAMPLE ID: B12-S3 3/11/98 1232

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<5)	MG/KG	100MG/KG	3/16/98	AMR
BENZENE	EPA-8021	ND(<0.1)	MG/KG	5MG/KG	3/16/98	AMR
TOLUENE	EPA-8021	ND(<0.1)	MG/KG	40MG/KG	3/16/98	AMR
ETHYLBENZENE	EPA-8021	ND(<0.1)	MG/KG	20MG/KG	3/16/98	AMR
XYLENES	EPA-8021	ND(<0.3)	MG/KG	20MG/KG	3/16/98	AMR

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APPROVED BY: 



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LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 3/17/98
CCIL JOB #: 803045
CCIL SAMPLE #: 19
DATE RECEIVED: 3/12/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008
CLIENT SAMPLE ID: B13-S1 3/11/98 1245

DATA RESULTS

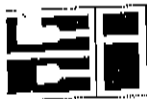
ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	38	MG/KG	100MG/KG	3/16/98	AMR
BENZENE	EPA-8021	3.0	MG/KG	.5MG/KG	3/16/98	AMR
TOLUENE	EPA-8021	0.1	MG/KG	40MG/KG	3/16/98	AMR
ETHYLBENZENE	EPA-8021	0.1	MG/KG	20MG/KG	3/16/98	AMR
XYLENES	EPA-8021	ND(<0.3)	MG/KG	20MG/KG	3/16/98	AMR

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LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 3/17/98
CCIL JOB #: 803045

DATE RECEIVED: 3/12/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID	ANALYTE	SUR ID	% RECV
	WTPH-G	TFT	117
803045-01	EPA-8021	TFT	116
803045-01	WTPH-G	TFT	141
803045-04	EPA-8021	TFT	120
803045-04(TOL., ETHYLBENZ, XYLENE)	EPA-8021	TFT	85
803045-04(BENZENE)	WTPH-G	TFT	133
803045-06	EPA-8021	TFT	127
803045-06	WTPH-G	TFT	119
803045-08	EPA-8021	TFT	106
803045-08	WTPH-G	TFT	125
803045-10	EPA-8021	TFT	106
803045-10	WTPH-G	TFT	108
803045-12	EPA-8021	TFT	95
803045-12	WTPH-G	TFT	126
803045-14	EPA-8021	TFT	105
803045-14	WTPH-G	TFT	105
803045-18	EPA-8021	TFT	91
803045-18	WTPH-G	TFT	120
803045-19	EPA-8021	TFT	106
803045-19			

APPROVED BY: 



CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 4/21/98
CCIL JOB #: 804062
CCIL SAMPLE #: 1
DATE RECEIVED: 4/16/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008 KENT MEEKER
CLIENT SAMPLE ID: MW1-H20 4/15/98 4:35

DATA RESULTS

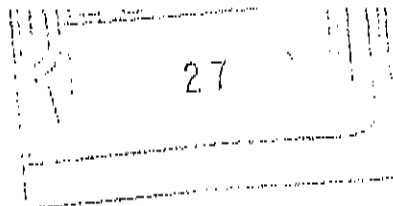
ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<50)	UG/L	1000 UG/L	4/21/98	AMR
BENZENE	EPA-8021	ND(<1)	UG/L	5 UG/L	4/21/98	AMR
TOLUENE	EPA-8021	ND(<1)	UG/L	40 UG/L	4/21/98	AMR
ETHYLBENZENE	EPA-8021	ND(<1)	UG/L	30 UG/L	4/21/98	AMR
XYLENES	EPA-8021	ND(<3)	UG/L	20 UG/L	4/21/98	AMR

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APPROVED BY: CLH



CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 4/21/98
CCIL JOB #: 804062
CCIL SAMPLE #: 2
DATE RECEIVED: 4/16/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008 KENT MEEKER
CLIENT SAMPLE ID: MW2-H2O 4/15/98 4:48

DATA RESULTS

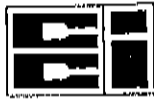
ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	4000	UG/L	1000 UG/L	4/21/98	AMR
BENZENE	EPA-8021	84	UG/L	5 UG/L	4/21/98	AMR
TOLUENE	EPA-8021	ND(<5)	UG/L	40 UG/L	4/21/98	AMR
ETHYLBENZENE	EPA-8021	130	UG/L	30 UG/L	4/21/98	AMR
XYLENES	EPA-8021	ND(<15)	UG/L	20 UG/L	4/21/98	AMR

* "ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

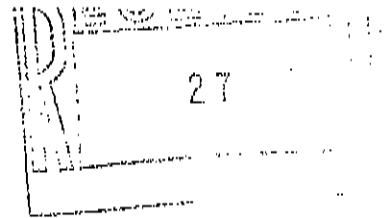
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APPROVED BY: CR



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LABORATORIES, INC.



CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 4/21/98
CCIL JOB #: 804062
CCIL SAMPLE #: 3
DATE RECEIVED: 4/16/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008 KENT MEEKER
CLIENT SAMPLE ID: MW3-H2O 4/15/98 4:39

DATA RESULTS

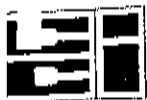
ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<50)	UG/L	1000 UG/L	4/21/98	AMR
BENZENE	EPA-8021	ND(<1)	UG/L	5 UG/L	4/21/98	AMR
TOLUENE	EPA-8021	ND(<1)	UG/L	40 UG/L	4/21/98	AMR
ETHYLBENZENE	EPA-8021	ND(<1)	UG/L	30 UG/L	4/21/98	AMR
XYLENES	EPA-8021	ND(<3)	UG/L	20 UG/L	4/21/98	AMR

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APPROVED BY: CLJ



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ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 4/21/98
CCIL JOB #: 804062
CCIL SAMPLE #: 4
DATE RECEIVED: 4/16/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

CLIENT PROJECT ID: 6E-9802008 KENT MEEKER
CLIENT SAMPLE ID: MW4-H2O 4/15/98 4:41

DATA RESULTS

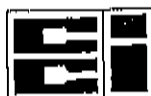
ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	83	UG/L	1000 UG/L	4/21/98	AMR
BENZENE	EPA-8021	ND(<1)	UG/L	5 UG/L	4/21/98	AMR
TOLUENE	EPA-8021	ND(<1)	UG/L	40 UG/L	4/21/98	AMR
ETHYLBENZENE	EPA-8021	ND(<1)	UG/L	30 UG/L	4/21/98	AMR
XYLENES	EPA-8021	ND(<3)	UG/L	20 UG/L	4/21/98	AMR

* "ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

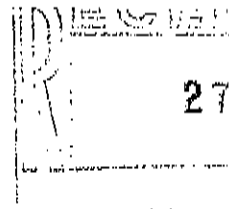
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY
CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY.
THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY
DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY: C142



CCI
ANALYTICAL
LABORATORIES, INC.



CERTIFICATE OF ANALYSIS

CLIENT: GILES ENGINEERING AND ASSOC.
11807 NORTHCREEK BLVD S #102
BOTHELL, WA 98011

DATE: 4/21/98
CCIL JOB #: 804062

DATE RECEIVED: 4/16/98
WDOE ACCREDITATION #: C142

CLIENT CONTACT: MARIA AGNE

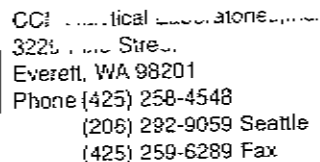
CLIENT PROJECT ID: 6E-9802008 KENT MEEKER

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID	ANALYTE	SUR ID	% RECV
804062-01	WTPH-G	TFT	87
804062-01	EPA-8021	TFT	74
804062-02	WTPH-G	TFT	106
804062-02	EPA-8021	TFT	90
804062-03	WTPH-G	TFT	97
804062-03	EPA-8021	TFT	84
804062-04	WTPH-G	TFT	107
804062-04	EPA-8021	TFT	95

APPROVED BY: 



Laboratory Analysis Request

Date 1.26.98 Page 1 of 3

6E 9801007

REPORT TO COMPANY: GILES
PROJECT MANAGER: MARIA AGNE
ADDRESS: 11807 NORTH CREEK PL WY
BOTHELL WA 98011
PHONE: 425 482 2020 FAX:
INVOICE TO COMPANY:
ATTENTION:
ADDRESS: SAME
P.O. NUMBER: CCI QUOTE:

[illegible][illegible]

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, and Time):

1. Relinquished By: M. J. GILES 12698 e. 6:45 pm

Received By: _____

2. Relinquished By: _____

Received By: _____

TURNAROUND REQUESTED in Business Days*

OTHER:

Organic, Metals & Inorganic Analysis

10 5 ~~3~~ 2 1 Sem Day

Specify: _____

Fuels & Hydrocarbon Analysis

5		1	Sam Day
---	--	---	------------

* Turnaround Requests less than standard may incur Rush Charge



CCI Chemical Atomic
3229 Pine Street
Everett, WA 98201
Phone (425) 258-4548
(206) 292-9059 Seattle
(425) 259-6289 Fax

Chain of Custody, Laboratory Analysis Request

Date _____ Page 2 of 3

GE-9801007

REPORT TO COMPANY: GILES

PROJECT MANAGER: MARIA AGNE

ADDRESS: _____

PHONE: _____ FAX: _____

INVOICE TO COMPANY: _____

ATTENTION: _____

ADDRESS: _____

PO NUMBER: _____ CCI QUOTE: _____

ANALYSIS REQUESTED

OTHER (Specify)

MANAGER: MARIA AGNE																								
ADDRESS:																								
PHONE:					FAX:																			
INVOICE TO COMPANY:																								
ATTENTION:																								
ADDRESS:																								
P.O. NUMBER:					CCI QUOTE:																			
SAMPLE I.D.					DATE	TIME	TYPE	LAB#	WTPH-G	WTPH-D <input checked="" type="checkbox"/> 8015 MODIFIED <input type="checkbox"/> EXT	WTPH-418.1	BTEX	WTPH-HCID	EPA 8020 <input type="checkbox"/> 802 <input type="checkbox"/>	EPA 8010 <input type="checkbox"/> 801 <input type="checkbox"/>	EPA 8240 <input type="checkbox"/> 824 <input type="checkbox"/> 8260 <input type="checkbox"/>	EPA 8270 <input type="checkbox"/> 825 <input type="checkbox"/>	EPA 8080 <input type="checkbox"/> 608 <input type="checkbox"/> PCB only <input type="checkbox"/> Pest only <input type="checkbox"/>	Metals Priority Pollutant <input type="checkbox"/> RCRA <input type="checkbox"/> TAL <input type="checkbox"/>	Metals Other (Specify)	TCLP Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi-Vol <input type="checkbox"/> Pest <input type="checkbox"/> Herb <input type="checkbox"/>			
1.	B7 SZ-7									X														
2.	B7 H2O-7																							
3.																								
4.																								
5.	-7																							
6.																								
7.	-4																							
8.	-7																							
9.																								
10.	-4																							
																				NUMBER OF CONTAINERS	3	RECEIVED IN GOOD CONDITION?		

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, and Time):

1. Relinquished By: M. Agne GILES 1269A 1845

Received By: _____

2. Relinquished By: _____

Received By: _____

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis

1D ☐ 5 ☐ ☒ 2 ☐ 1 ☐ Same Day

Fuels & Hydrocarbon Analysis

5 ☐ ☒ 1 ☐ Same Day

OTHER:

Specify: _____

322! Stre
Everett, WA 98201
Phone (425) 258-4546
(206) 292-9059 Seattle
(425) 259-6289 Fax

Laboratory Analysis Results

Date 1-20-09 Page 13 Of 33

GE 19801007

[illegible]

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, and Time):

SIGNATURES (Name, Company, Date, and time):

1. Relinquished By: M. J. Jones 1-26-98 1845

Received By: _____

2. Relinquished By: _____
Received By: _____

TURNAROUND REQUESTED in Business Days*

OTHER:

Organic, Metals & Inorganic Analysis

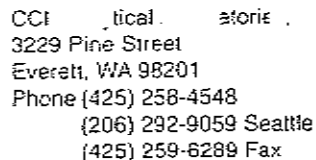
10	5	3	2	1	Score Card
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Fuels & Hydrocarbon Analysis

5	6	7	Sam Day
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Specify: _____

* Turnaround Requests less than standard may incur Rush Charge



Chain of Custody / Laboratory Analysis Request

Date 3.12.98 Page 1 Of 3

PROJECT ID: 10E 9802008
REPORT TO: GILES
COMPANY:
PROJECT MANAGER: MARIA AGNE
ADDRESS: 11807 N. CREEK PRKY S
BOTHELL WA 98011
PHONE: 425 482 2020 FAX: 425 482 6300
INVOICE TO: COMPANY
ATTENTION:
ADDRESS:
P.O. NUMBER: CCI QUOTE:

[illegible]

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, and Time):

SIGNATURES (Name, Company, Date, and Time):

1. Relinquished By: M. J. GILES 3-12-98 @ 9:45
Received By: [Signature] 3/12/98 9:45

2. Relinquished By: _____
Received by: _____

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis

10	5	3	2	1	Score Day
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OTHER:

Specify: _____

Fuels & Hydrocarbon Analysis

5 ~~6~~ 1 Same Day



CCI Chemical Analytical
3220 1st Street
Everett, WA 98201
Phone (425) 258-4548
(206) 292-9059 Seattle
(425) 259-6289 Fax

Chain of Custody / Laboratory Analysis Request

Date 3-12-98 Page 2 of 3

PROJECT ID: GE 9802008
REPORT TO: GILES
COMPANY: MARIA AGNE
PROJECT MANAGER: MARIA AGNE
ADDRESS: _____
PHONE: 425 482 2020 FAX: _____
INVOICE TO: _____
COMPANY: _____
ATTENTION: _____
ADDRESS: _____
P.O. NUMBER: _____ CCI QUOTE: _____

ANALYSIS REQUESTED

OTHER (Specify)

PROJECT MANAGER MAYLIA AGNE					ANALYSIS REQUESTER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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SAMPLE I.D.	DATE	TIME	TYPE	LAB#	WTPH-G	WTPH-D <input type="checkbox"/> 8015 MODIFIED <input type="checkbox"/>	WTPH-418.1	BTEX	WTPH-HCID	EPA 8020 <input type="checkbox"/> 802 <input type="checkbox"/>	EPA 8010 <input type="checkbox"/> 601 <input type="checkbox"/>	EPA 8240 <input type="checkbox"/> 624 <input type="checkbox"/> 8260 <input type="checkbox"/>	EPA 8270 <input type="checkbox"/> 625 <input type="checkbox"/>	EPA 8080 <input type="checkbox"/> 608 <input type="checkbox"/> PCB only <input type="checkbox"/> Pest only <input type="checkbox"/>	Metals Priority Pollutant <input type="checkbox"/> RCRA <input type="checkbox"/> TAL <input type="checkbox"/>	Metals Other (Specify)	TCLP Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi-Vol <input type="checkbox"/> Pest <input type="checkbox"/> Herb <input type="checkbox"/>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, and Time):

1. Relinquished By: M. Agne GILES 3-12-98 @ 9:45
Received By: Phil Bagnall CCI 3/12/98 9:45
2. Relinquished By: _____
Received By: _____

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis

☐ 10 ☐ 5 ☐ 3 ☐ 2 ☐ 1 ☐ Same Day

Fuels & Hydrocarbon Analysis

☐ 5 ☒ 1 ☐ Same Day

OTHER:

Specify: _____

CCl tical atcri
3229 Pine Street
Everett, WA 98201
Phone (425) 258-4548
(206) 292-9059 Seattle
(425) 259-6289 Fax

Chain of Custody,
Laboratory Analysis Request

Date 3.12.98 Page 3 Of 3

PROJECT ID:	GE 9802008	
REPORT TO COMPANY	GILES	
PROJECT MANAGER	MARIA AGNE	
ADDRESS:		
PHONE:	475 482 2020	FAX:
INVOICE TO COMPANY		
ATTENTION:		
ADDRESS		
P.O. NUMBER:	CCI QUOTE:	

PG NUMBER	SAMPLE I.D.	DATE	TIME	TYPE	LAB#
1.	B13 53	3-11-98	1307		
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

[illegible]

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, and Time):

SIGNATURES (Name, Company, Date, and Title):

1. Relinquished By: M. Mc GILES 3-12-98 @ 9:45

Received By: [Signature] CITA 3/12/98 9:45

2. Relinquished By: _____

Received By: _____

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis

10	5	3	2	1	Same Day
Standard					

Fuels & Hydrocarbon Analysis

☐ S ☒ ~~S~~ ☐ 1 ☐ San
 Sand Day

OTHER:

Specify: _____

Turnare	1985-86	Landare	ur Rusi
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January 16, 2002

Greg Helland
SCS Engineers
2405 140th Ave. NE, #107
Bellevue, WA 98005

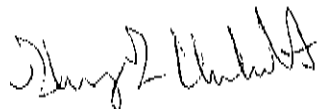
Dear Mr. Helland:

Please find enclosed the analytical data report for the Meeker Square Project in Kent, Washington. Soil samples were analyzed for Diesel and Oil by NWTPH-Dx/Dx Extended, Gasoline by NWTPH-Gx, and BTEX by Method 8021B on January 16, 2002.

The results of these analyses are summarized in the attached table. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to SCS Engineers for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,



Sherry L. Chilcutt
Vice President

January 16, 2002

Greg Helland
SCS Engineers
2405 140th Ave. NE, #107
Bellevue, WA 98005

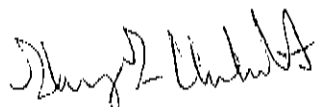
Dear Mr. Helland:

Please find enclosed the analytical data report for the Meeker Square Project in Kent, Washington. Soil samples were analyzed for Diesel and Oil by NWTPH-Dx/Dx Extended, Gasoline by NWTPH-Gx, and BTEX by Method 8021B on January 16, 2002.

The results of these analyses are summarized in the attached table. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to SCS Engineers for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,



Sherry L. Chilcutt
Vice President

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20109-2
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
Client Job Number: NA

Analytical Results

NWTPH-Gx / BTEX		MTH BLK	LCS	MW-1	MW-2	MW-3	DUP A
Matrix	Water	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	01/09/02	01/09/02	01/09/02	01/09/02	01/09/02	01/09/02
Date analyzed	Limits	01/09/02	01/09/02	01/09/02	01/09/02	01/09/02	01/09/02

NWTPH-Gx, mg/L

Mineral spirits/Stoddard solvent	0.10	nd		nd	nd	nd	nd
Gasoline	0.10	nd		nd	1.7	nd	1.6

BTEX, µg/L

Benzene	1.0	nd	92%	nd	13	nd	14
Toluene	1.0	nd	103%	nd	nd	nd	nd
Ethylbenzene	1.0	nd		nd	14	nd	13
Xylenes	1.0	nd		nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	99%	86%	93%	97%	92%	95%
Bromofluorobenzene	97%	86%	103%	102%	104%	101%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20109-2
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
Client Job Number: NA

Analytical Results

DUPL

NWTPH-Dx, mg/l		MTH BLK	MW-1	MW-2	MW-3	MW-3	DUPA
Matrix	Water	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	01/09/01	01/09/01	01/09/01	01/09/01	01/09/01	01/09/01
Date analyzed	Limits	01/09/01	01/09/01	01/09/01	01/09/01	01/09/01	01/09/01
Kerosene/Jet fuel	0.20	nd	nd	nd	nd	nd	nd
Diesel/Fuel oil	0.20	nd	nd	nd	nd	nd	nd
Heavy oil	0.50	nd	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	99%	105%	89%	92%	100%	97%
o-Terphenyl	109%	127%	100%	104%	104%	102%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

S20109-2

CHAIN-OF-CUSTODY RECORD

 CLIENT: SCS Engineers

 DATE: 1-9-2002 PAGE 1 OF 1

 ADDRESS: 2405 195th Ave NE #101 Redmond WA 98053

 PROJECT NAME: Meeker Square Fertilizer Gas Station

 PHONE: 425-746-7600 FAX: 425-746-6747

 LOCATION: Kent WA

 CLIENT PROJECT #: _____ PROJECT MANAGER: Greg Helander

 COLLECTOR: Brian Doan DATE OF COLLECTION: 1-9-2002

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES																Total Number of Containers	Laboratory Note Number
					VOA 8021B	VOA 8021B BTEX Only	VOA 8021B	SEMI VOL 8270	TPH - HClD	TPH 8015 (gasoline)	TPH 8015 (diesel)	PAH 8015 (a & o)	PAH 8100	PCBs 8082	Pesticides 8081	EPH	VPH	Methamphetamine	Pb	Hex Chrome		
1. <u>112.1</u>			<u>water</u>	<u>VOA</u>																		
2. <u>112.2</u>																						
3. <u>112.3</u>																						
4. <u>112.4</u>																						
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16.																						
17.																						
18.																						

RELINQUISHED BY (Signature) _____ DATE/TIME _____ RECEIVED BY (Signature) _____ DATE/TIME _____

SAMPLE RECEIPT
LABORATORY NOTES:

RELINQUISHED BY (Signature) _____ DATE/TIME _____ RECEIVED BY (Signature) _____ DATE/TIME _____

TOTAL NUMBER OF CONTAINERS _____

CHAIN OF CUSTODY SEALS Y/N/NA _____

SEALS INTACT? Y/N/NA _____

RECEIVED GOOD COND./COLD _____

NO. _____

SAMPLE DISPOSAL INSTRUCTIONS

 LE ESN DISPOSAL at 2.00 each ☐ hours ☐ pickup

Jan A Time HR R 5

January 22, 2002

Greg Helland
SCS Engineers
2405 140th Ave. NE, #107
Bellevue, WA 98005

Dear Mr. Helland:

Please find enclosed the analytical data report for the Meeker Square Project in Kent, Washington. Soil and water samples were analyzed for Diesel and Oil by NWTPH-Dx/Dx Extended, Gasoline by NWTPH-Gx, and BTEX by Method 8021B on January 16, 2002.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to SCS Engineers for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,



Michael A. Korosec
President

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20114-4
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
Client Job Number: 04201049.00

Analytical Results							DUPL
NWTPH-Dx, mg/l		MTH BLK	SP1	SP2	SP3	SP4	SP4
Matrix	Water	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02
Date analyzed	Limits	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02
Kerosene/Jet fuel	0.20	nd	nd	nd	nd	nd	nd
Diesel/Fuel oil	0.20	nd	nd	nd	nd	nd	nd
Heavy oil	0.50	nd	nd	nd	nd	nd	nd
Surrogate recoveries:							
Fluorobiphenyl		124%	113%	111%	111%	112%	101%
o-Terphenyl		131%	117%	115%	118%	114%	114%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20114-4
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
Client Job Number: 04201049.00

Analytical Results

NWTPH-Dx, mg/l		SP5	SP6
Matrix	Water	Water	Water
Date extracted	Reporting	01/15/02	01/15/02
Date analyzed	Limits	01/15/02	01/15/02
Kerosene/Jet fuel	0.20	nd	nd
Diesel/Fuel oil	0.20	nd	nd
Heavy oil	0.50	nd	nd

Surrogate recoveries:

Fluorobiphenyl	109%	105%
o-Terphenyl	116%	118%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20114-4
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
Client Job Number: 04201049.00

Analytical Results					MS	MSD	RPD
NWTPH-Gx / BTEX		MTH BLK	LCS	SP1-2.8	SP1-2.8	SP1-2.8	SP1-2.8
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02
Date analyzed	Limits	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02

NWTPH-Gx, mg/kg

Mineral spirits/Stoddard solvent	5.0	nd		nd			
Gasoline	5.0	nd		24			

BTEX, ug/kg

Benzene	20	nd	93%	nd	95%	102%	7%
Toluene	50	nd	102%	nd	110%	113%	3%
Ethylbenzene	50	nd		nd			
Xylenes	50	nd		nd			

Surrogate recoveries:

Trifluorotoluene	118%	107%	122%	115%	112%		
Bromofluorobenzene	111%	111%	117%	112%	108%		

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 85% TO 135%
Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20114-4
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
Client Job Number: 04201049.00

Analytical Results

NWTPH-Gx / BTEX		SP1-B.5	SP2-2.5	SP2-4	SP2-6.8	SP3-4	SP3-10
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02
Date analyzed	Limits	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02

NWTPH-Gx, mg/kg

Mineral spirits/Stoddard solvent	5.0	nd	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	64	9.4

BTEX, µg/kg

Benzene	20	nd	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	190	nd
Xylenes	50	nd	nd	nd	nd	160	nd

Surrogate recoveries:

Trifluorotoluene	118%	116%	111%	100%	101%	103%
Bromofluorobenzene	116%	111%	112%	74%	78%	78%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20114-4
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
Client Job Number: 04201049.00

Analytical Results

NWTPH-Gx / BTEX		SP4-7.5	SP5-3	SP6-3	SP6-9.5	SP5-8
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02
Date analyzed	Limits	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02

NWTPH-Gx, mg/kg

Mineral spirits/Stoddard solvent	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	8.8	nd	nd

BTEX, ug/kg

Benzene	20	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	94%	96%	99%	106%	97%
Bromofluorobenzene	71%	71%	88%	92%	82%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

↑
SP5-3 not 8'
mis-labeled by lab.

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20114-4
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
Client Job Number: 04201049.00

Analytical Results

NWTPH-Gx / BTEX		MTH BLK	LCS	SP1	SP2	SP3	SP4
Matrix	Water	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02
Date analyzed	Limits	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02

NWTPH-Gx, mg/L

Mineral spirits/Stoddard solvent	0.10	nd		nd	nd	nd	nd
Gasoline	0.10	nd		nd	nd	1.5	1.2

BTEX, ug/L

Benzene	1.0	nd	93%	nd	nd	6.4	5.0
Toluene	1.0	nd	102%	nd	nd	nd	nd
Ethylbenzene	1.0	nd		nd	nd	nd	nd
Xylenes	1.0	nd		nd	nd	8.9	nd

Surrogate recoveries:

Trifluorotoluene	118%	107%	128%	126%	118%	115%
Bromofluorobenzene	111%	111%	118%	116%	118%	118%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
 (425) 957-9872, fax (425) 957-9904

ESN Job Number: S20114-4
 Client: SCS ENGINEERS
 Client Job Name: MEEKER SQUARE
 Client Job Number: 04201049.00

Analytical Results DUPL

NWTPH-Gx / BTEX		SP5	SP6	SP6
Matrix	Water	Water	Water	Water
Date extracted	Reporting	01/15/02	01/15/02	01/15/02
Date analyzed	Limits	01/15/02	01/15/02	01/15/02

NWTPH-Gx, mg/L

Mineral spirits/Stoddard solvent	0.10	nd	nd	nd
Gasoline	0.10	0.16	nd	nd

BTEX, µg/L

Benzene	1.0	nd	nd	nd
Toluene	1.0	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd
Xylenes	1.0	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	110%	117%	108%
Bromofluorobenzene	113%	113%	111%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
 na - not analyzed
 C - coelution with sample peaks
 M - matrix interference
 J - estimated value
 Acceptable Recovery limits: 65% TO 135%
 Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20114-4
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
Client Job Number: 04201049.00

Analytical Results

NWTPH-Dx, mg/kg		MTH BLK	SP1-2.8	SP1-6.5	SP2-2.5	SP2-4	SP2-6.8
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02
Date analyzed	Limits	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd	nd
Diesel/Fuel oil	20	nd	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	124%	105%	106%	103%	100%	103%
o-Terphenyl	131%	116%	115%	115%	113%	114%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20114-4
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
Client Job Number: 04201049.00

Analytical Results		DUPL					
NWTPH-Dx, mg/kg		SP3-4	SP3-4	SP3-10	SP4-7.5	SP5-3	SP6-3
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02
Date analyzed	Limits	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02	01/15/02
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd	nd
Diesel/Fuel oil	20	nd	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd	nd
Surrogate recoveries:							
Fluorobiphenyl		109%	110%	102%	101%	102%	101%
o-Terphenyl		115%	115%	113%	112%	113%	111%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20114-4
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
Client Job Number: 04201049.00

Analytical Results		DUPL		
NWTPH-Dx, mg/kg		SP6-9.5	SP5-B	SP5-8
Matrix	Soil	Soil	Soil	Soil
Date extracted	Reporting	01/15/02	01/15/02	01/15/02
Date analyzed	Limits	01/15/02	01/15/02	01/15/02
Kerosene/Jet fuel	20	nd	nd	nd
Diesel/Fuel oil	20	nd	nd	nd
Heavy oil	50	nd	nd	nd
Surrogate recoveries:				
Fluorobiphenyl		103%	105%	105%
o-Terphenyl		111%	113%	115%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

SA 0111-4

CHAIN-OF-CUSTODY RECORD

CLIENT: SCS Engineers

ADDRESS: 2405 140th Ave NE, #117, Bellevue, WA 98005

PHONE: 425-746-4600 FAX: 425-746-6747

CLIENT PROJECT #: 04201049.00 PROJECT MANAGER: Greg Heland

DATE: 1-14-2002 PAGE 1 OF 1

PROJECT NAME: Hecker Square Farmer Gas Station

LOCATION: Kent WA

COLLECTOR: Brian Dean DATE OF COLLECTION: 1-14-02

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES	SEM VOL 8270	TPH 8015 (diesel)	TPH 8015 (gasoline)	TPH 8015 (diesel)	PAH 8100	PCBs 8082	Pesticides 8081	VPH	Nekamphenanthrene	Hex Chlorine	NOTES	Total Number of Containers	Laboratory Note Number
1. SP1 - 2.8'			Soil	Jar													1	
2. SP1 - 8.5'																		
3. SP2 - 2.5'																		
4. SP2 - 4'																		
5. SP2 - 6.8'																		
6. SP3 - 4'																		
7. SP3 - 10'																		
8. SP4 - 7.5'																		
9. SP5 - 3'																		
10. SP6 - 3'																		
11. SP6 - 9.5'																		
12. SP5 - 8'																		
13. SP1			Water	VOA													4	
14. SP2																		
15. SP3																		
16. SP4																		
17. SP5																		
18. SP6																		

RECEIVED BY (Signature)		DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
<u>Brian Dean</u>		<u>1-14-2002</u>	<u>2602</u>	<u>11:50</u>
RELINQUISHED BY (Signature)		DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
<u>Brian Dean</u>		<u>16 45</u>		
SAMPLE DISPOSAL INSTRUCTIONS				
<input type="checkbox"/> ESN DISPOSAL @ \$2.00 each <input type="checkbox"/> Return <input type="checkbox"/> Pickup				
NOTES:				
TOTAL NUMBER OF CONTAINERS CHAIN OF CUSTODY SEALS Y/N/A SEALS INTACT? Y/N/A RECEIVED GOOD COND./COLD				
LABORATORY NOTES:				
Turn Around Time: <u>5A</u>				

April 25, 2002

Greg Helland
SCS Engineers
2405 140th Ave. NE, #107
Bellevue, WA 98005

Dear Mr. Helland:

Please find enclosed the analytical data report for the Moecker Cleaners Project in Kent, Washington. Soil samples were analyzed for Gasoline by NWTPH-Gx and BTEX by Method 8021B on April 19, 2002.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to SCS Engineers for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry L. Chilcutt
Vice President

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20419-5
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
GAS STATION
Client Job Number: 04202001.01

Analytical Results					DUPL	RPD
NWTPH-Gx / BTEX		MTH BLK	LCS	D2-3	D1-2	D1-2
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	04/19/02	04/19/02	04/19/02	04/19/02	04/19/02
Date analyzed	Limits	04/19/02	04/19/02	04/19/02	04/19/02	04/19/02

NWTPH-Gx, mg/kg							
Mineral spirits/Stoddard solvent	5.0	nd		nd	nd	nd	
Gasoline	5.0	nd		nd	580	740	24%

BTEX, µg/kg							
Benzene	20	nd	77%	nd	nd	nd	
Toluene	50	nd	82%	nd	nd	nd	
Ethylbenzene	50	nd		nd	nd	nd	
Xylenes	50	nd		nd	1,100	1,300	17%

Surrogate recoveries:							
Trifluorotoluene		120%	124%	129%	124%	123%	
Bromofluorobenzene		110%	118%	121%	C	C	

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20419-5
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
GAS STATION
Client Job Number: 04202001.01

Analytical Results

NWTPH-Gx / BTEX		D3-5	C4-7	B3NW-3	D3-7.5	D2EAST-5	D4-7.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	04/19/02	04/19/02	04/19/02	04/19/02	04/19/02	04/19/02
Date analyzed	Limits	04/19/02	04/19/02	04/19/02	04/19/02	04/19/02	04/19/02

NWTPH-Gx, mg/kg

Mineral spirits/Stoddard solvent	5.0	nd	nd	nd	nd	nd	nd
Gasoline	5.0	140	nd	130	nd	220	nd

BTEX, µg/kg

Benzene	20	nd	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd	nd
Ethylbenzene	50	800	nd	150	nd	250	nd
Xylenes	50	540	nd	170	nd	920	nd

Surrogate recoveries:

Trifluorotoluene	131%	120%	116%	103%	134%	101%
Bromofluorobenzene	C	110%	120%	97%	C	107%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20419-5
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
GAS STATION
Client Job Number: 04202001.01

Analytical Results		DUPL		RPD		MS	MSD
NWTPH-Gx / BTEX		B2-7	C3-8	C3-8	C3-8	C4-7	C4-7
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	04/19/02	04/19/02	04/19/02	04/19/02	04/19/02	04/19/02
Date analyzed	Limits	04/19/02	04/19/02	04/19/02	04/19/02	04/19/02	04/19/02

NWTPH-Gx, mg/kg

Mineral spirits/Stoddard solvent	5.0	nd	nd	nd			
Gasoline	5.0	nd	130	130	0%		

BTEX, µg/kg

Benzene	20	nd	nd	nd		77%	79%
Toluene	50	nd	nd	nd		112%	87%
Ethylbenzene	50	nd	4,200	5,900	34%		
Xylenes	50	nd	320	310	3%		

Surrogate recoveries:

Trifluorotoluene	74%	C	127%		125%	130%
Bromofluorobenzene	75%	C	C		124%	120%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S20419-5
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
GAS STATION
Client Job Number: 04202001.01

Analytical Results		RPD
NWTPH-Gx / BTEX		C4-7
Matrix	Soil	Soil
Date extracted	Reporting	04/19/02
Date analyzed	Limits	04/19/02

NWTPH-Gx, mg/kg

Mineral spirits/Stoddard solvent	5.0
Gasoline	5.0

BTEX, ug/kg

Benzene	20	3%
Toluene	50	25%
Ethylbenzene	50	
Xylenes	50	

Surrogate recoveries:

Trifluorotoluene
Bromofluorobenzene

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

CHAIN-OF-CUSTODY RECORD

CLIENT: SCS Engineers
 ADDRESS: 2405 140 Ave NE #100 Bellevue WA 98005
 PHONE: 425-746-4600 FAX: 425-746-4600
 CLIENT PROJECT #: 0402001-01 PROJECT MANAGER: Brian Dean

DATE: 4-19-2002 PAGE 1 OF 1
 PROJECT NAME: Miller Spill Gas Station
 LOCATION: Kent WA
 COLLECTOR: Brian Dean DATE OF COLLECTION: 4-19-02

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES																Total Number of Containers	Laboratory Note Number
					VOA 8021B	VOA 8021B BTEX Only	VOA 8021B	SEMI VOL 8270	TPH - HClD	TPH 8015 (gasoline)	TPH 8015 (diesel)	PAH 8015 (a & o)	PAH 8100	PCBs 8082	Pesticides 8081	EPH	VPH	Methamphetamine	Pb	Hex Chrome		
1. E2-7	7'		Soil	Seal	X				X													
2. E3-10-3'	3'																					
3. E3-8	5'																					
4. E4-7'	7'																					
5. D1-2'	2'																					
6. D2-3'	3'																					
7. D2-east-5'	5'				X				X													
8. D3-5'	5'		Soil	Seal	X				X													
9. D3-7.5	7.5				X				X													
10. D4-7.5	7.5			V	X				X													
11.																						
12.																						
13.																						
14.																						
15.																						
16.																						
17.																						
18.																						

Note:
 DCA
 4/19/02

RELINQUISHED BY (Signature) [Signature] DATE/TIME 4-19-02
 RECEIVED BY (Signature) [Signature] DATE/TIME 4-19-02

RELINQUISHED BY (Signature) [Signature] DATE/TIME 4-19-02
 RECEIVED BY (Signature) [Signature] DATE/TIME 4-19-02

SAMPLE RECEIPT
 TOTAL NUMBER OF CONTAINERS 10
 CHAIN OF CUSTODY SEALS Y/N/A Y
 SEALS INTACT? Y/N/A Y
 RECEIVED GOOD COND./COLD Y

LABORATORY NOTES:
 Turn 2 1 Tim 4 HR 4 HR

May 7, 2002

Greg Helland
SCS Engineers
2405 140th Ave. NE, #107
Bellevue, WA 98005

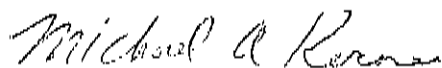
Dear Mr. Holland:

Please find enclosed the analytical data report for the Mecker Square Project in Kent, Washington. Soil samples were analyzed for Gasoline by NWTPH-Gx and BTEX by Method 8021B on April 22, 2002.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to SCS Engineers for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,



Michael A. Korosec
President

ESN SEATTLE CHEMISTRY LABORATORY
(425) 857-9872, fax (425) 857-9904

ESN Job Number: S20422-2
Client: SCS ENGINEERS
Client Job Name: MEEKER SQUARE
FORMER GAS STATION
Client Job Number: 04202001.01

Analytical Results		MS		MSD		RPD		
NWTPH-Gx / BTEX		MTH BLK	LCS	A3SOUTH-3	A3SOUTH-3	A3SOUTH-3	A3SOUTH-3	B2-3
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	04/22/02	04/22/02	04/22/02	04/22/02	04/22/02	04/22/02	04/22/02
Date analyzed	Limits	04/22/02	04/22/02	04/22/02	04/22/02	04/22/02	04/22/02	04/22/02
NWTPH-Gx, mg/kg								
Mineral spirits/Stoddard solvent	5.0	nd		nd				nd
Gasoline	5.0	nd		nd				nd
BTEX, µg/kg								
Benzene	20	nd	70%	nd	74%	79%	7%	nd
Toluene	50	nd	77%	nd	81%	87%	7%	nd
Ethylbenzene	50	nd		nd				nd
Xylenes	50	nd		nd				nd
Surrogate recoveries:								
Trifluorotoluene		98%	113%	120%	119%	118%		126%
Bromofluorobenzene		95%	120%	112%	114%	113%		118%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
 (425) 957-9872, fax (425) 957-9904

ESN Job Number: S20422-2
 Client: SCS ENGINEERS
 Client Job Name: MEEKER SQUARE
 FORMER GAS STATION
 Client Job Number: 04202001.01

Analytical Results

NWTPH-Gx / BTEX		B4EAST-3	C0SE-2	D0EAST-2	D1SOUTH-2
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	04/22/02	04/22/02	04/22/02	04/22/02
Date analyzed	Limits	04/22/02	04/22/02	04/22/02	04/22/02

NWTPH-Gx, mg/kg

Mineral spirits/Stoddard solvent	5.0	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	840

BTEX, ug/kg

Benzene	20	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	200
Xylenes	50	nd	nd	nd	11,000

Surrogate recoveries:

Trifluorotoluene	128%	116%	119%	116%
Bromofluorobenzene	118%	114%	111%	118%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

2001.01

CLIENT: SCS Engineers
 ADDRESS: 2405 NE #107, Bellevue, WA 98005
 PHONE: 425-746-4600 FAX: 425-746-6747
 PROJECT NAME: Water Supply Line (East Side)
 LOCATION: East Side
 DATE: 4-22-2002 PAGE 1 OF 1
 COLLECTOR: Brian Dora
 DATE OF COLLECTION: 4-22-2002

CLIENT PROJECT #: 01020001-01 PROJECT MANAGER: Brian Dora

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES	NOTES	Total Number of Containers	Laboratory Note Number
1. H354A-2	0		Soil	Soil	VOA 80216 VOA 80218 BTEX ONLY SEM VOL 8260 TPH - HClD TPH 8015 (gasoline) TPH 8015 (diesel) PAH 8100 PCBS 8082 Pesticides 8081 EPH VPH Metamphetamine Pb Hex Chlorine			
2. 82-3	3'				X			
3. 842A-3	3'				X			
4. 82-2	2'				X			
5. 82-2	2'				X			
6. 82-2	2'				X			
7. 82-2	2'				X			
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								

RECEIVED BY (Signature) _____ DATE/TIME _____
 RECEIVED BY (Signature) _____ DATE/TIME _____
 CHAIN OF CUSTODY SEALS Y/N/A _____
 SEALS INTACT? Y/N/A _____
 RECEIVED GOOD COND/COLD _____
 NOTES: _____
 Turn Around Time: 24 HR 48 HR 5 DAY



STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: May 30, 2002

TO: Brian Doan
SCS Engineers
2405 140th Ave. N. E., Suite 107
Bellevue, WA 98005

PROJECT: Meeker Former Gas Station 04202001.01

REPORT NUMBER: 106043

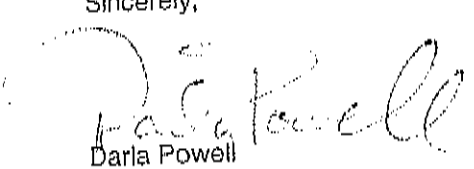
TOTAL NUMBER OF PAGES: 21

Enclosed are the test results for nine samples received at STL Seattle on May 17, 2002.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,



Darla Powell
Project Manager

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STL Seattle

Sample Identification:

<u>Lab. No.</u>	<u>Client ID</u>	<u>Date/Time Sampled</u>	<u>Matrix</u>
106043-1	OW1-5'	05-16-02 *	solid
106043-2	OW1-10'	05-16-02 *	solid
106043-3	OW1-15'	05-16-02 *	solid
106043-4	OW2-5'	05-16-02 *	solid
106043-5	OW2-10'	05-16-02 *	solid
106043-6	OW2-15'	05-16-02 *	solid
106043-7	OW3-5'	05-16-02 *	solid
106043-8	OW3-10'	05-16-02 *	solid
106043-9	OW3-15'	05-16-02 *	solid

* - Sampling time not specified for this sample

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2

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STL Seattle

Client Name
Project Name

SCS Engineers
Meeker Former Gas Station
04202001.01
05-17-02

Date Received

General Chemistry Parameters

Client Sample ID Lab ID		OW1-5' 106043-01			
Parameter	Method	Date Analyzed	Units	Result	PQL
% Moisture	EPA 160.3	05-28-02	%	6.76	0.1

Client Sample ID Lab ID		OW2-5' 106043-04			
Parameter	Method	Date Analyzed	Units	Result	PQL
% Moisture	EPA 160.3	05-28-02	%	22.71	0.1

Client Sample ID Lab ID		OW3-5' 106043-07			
Parameter	Method	Date Analyzed	Units	Result	PQL
% Moisture	EPA 160.3	05-28-02	%	13.82	0.1

Client Sample ID Lab ID		OW3-10' 106043-08			
Parameter	Method	Date Analyzed	Units	Result	PQL
% Moisture	EPA 160.3	05-28-02	%	22.68	0.1

Client Sample ID Lab ID		OW3-15' 106043-09			
Parameter	Method	Date Analyzed	Units	Result	PQL
% Moisture	EPA 160.3	05-28-02	%	24.89	0.1

STL Seattle

Client Name	SCS Engineers
Client ID:	OW1-5'
Lab ID:	106043-01
Date Received:	5/17/02
Date Prepared:	5/28/02
Date Analyzed:	5/28/02
% Solids	93.24
Dilution Factor	1

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	86.8		70	130
Bromofluorobenzene	93.7		80	130

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Benzene	ND	0.0211	0.00422	
Toluene	ND	0.0422	0.00676	
Ethylbenzene	ND	0.0422	0.00634	
m&p-Xylene	ND	0.0845	0.00296	
o-Xylene	ND	0.0422	0.00803	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW2-5'
Lab ID:	106043-04
Date Received:	5/17/02
Date Prepared:	5/28/02
Date Analyzed:	5/28/02
% Solids	77.29
Dilution Factor	1

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	75.2		70	130
Bromofluorobenzene	82		80	130

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Benzene	ND	0.0242	0.00483	
Toluene	ND	0.0483	0.00773	
Ethylbenzene	ND	0.0483	0.00725	
m&p-Xylene	ND	0.0966	0.00338	
o-Xylene	ND	0.0483	0.00918	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW3-5'
Lab ID:	106043-07
Date Received:	5/17/02
Date Prepared:	5/28/02
Date Analyzed:	5/28/02
% Solids	86.18
Dilution Factor	1

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	87.1		70	130
Bromofluorobenzene	125		80	130

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Benzene	0.168	0.0225	0.0045	
Toluene	0.0844	0.045	0.0072	
Ethylbenzene	1.5	0.045	0.00675	
m&p-Xylene	2.44	0.09	0.00315	
o-Xylene	0.443	0.045	0.00855	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW3-10'
Lab ID:	106043-08
Date Received:	5/17/02
Date Prepared:	5/28/02
Date Analyzed:	5/29/02
% Solids	77.32
Dilution Factor	1

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	74.4		70	130
Bromofluorobenzene	80.3		80	130

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Benzene	0.0914	0.0247	0.00494	
Toluene	0.0153	0.0494	0.0079	J
Ethylbenzene	0.104	0.0494	0.00741	
m&p-Xylene	0.159	0.0988	0.00346	
o-Xylene	0.0221	0.0494	0.00939	J

STL Seattle

Client Name	SCS Engineers
Client ID:	OW3-15'
Lab ID:	106043-09
Date Received:	5/17/02
Date Prepared:	5/28/02
Date Analyzed:	5/29/02
% Solids	75.11
Dilution Factor	1

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	73		70	130
Bromofluorobenzene	75.1	N	80	130

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Benzene	ND	0.0252	0.00504	
Toluene	ND	0.0504	0.00806	
Ethylbenzene	ND	0.0504	0.00756	
m&p-Xylene	0.00677	0.101	0.00353	J
o-Xylene		0.0504	0.00957	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW1-5'
Lab ID:	106043-01
Date Received:	5/17/02
Date Prepared:	5/28/02
Date Analyzed:	5/28/02
% Solids	93.24
Dilution Factor	1

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	86.4		50	150
Bromofluorobenzene	97.5		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Gasoline by NWTPH-G	ND	4.22	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW2-5'
Lab ID:	106043-04
Date Received:	5/17/02
Date Prepared:	5/28/02
Date Analyzed:	5/28/02
% Solids	77.29
Dilution Factor	1

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	76.2		50	150
Bromofluorobenzene	84.4		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Gasoline by NWTPH-G	ND	4.83	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW3-5'
Lab ID:	106043-07
Date Received:	5/17/02
Date Prepared:	5/28/02
Date Analyzed:	5/28/02
% Solids	86.18
Dilution Factor	1

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	116		50	150
Bromofluorobenzene	206	X9	50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Gasoline by NWTPH-G	271	4.5	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW3-10'
Lab ID:	106043-08
Date Received:	5/17/02
Date Prepared:	5/28/02
Date Analyzed:	5/29/02
% Solids	77.32
Dilution Factor	1

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	78.5		50	150
Bromofluorobenzene	95.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Gasoline by NWTPH-G	31	4.94	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW3-15'
Lab ID:	106043-09
Date Received:	5/17/02
Date Prepared:	5/28/02
Date Analyzed:	5/29/02
% Solids	75.11
Dilution Factor	1

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	73.6		50	150
Bromofluorobenzene	80.7		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Gasoline by NWTPH-G	ND	5.04	

STL Seattle

QUALITY CONTROL REPORT

Client Sample ID: OW1-5'
Lab ID: 106043-01
QC Batch Number: 1054-53

Method Blank

Parameter	Result (%)	PQL
% Moisture	ND	0.1

Duplicate

Parameter	Sample Result (%)	Duplicate Result (%)	RPD (%)	Flag
% Moisture	6.76	6.55	0.22	

STL Seattle

Lab ID: Method Blank - GB3078
 Date Received: 5/28/02
 Date Prepared: 5/28/02
 Date Analyzed:
 % Solids 1
 Dilution Factor

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	104		75	130
Bromofluorobenzene	99.3		80	130

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Benzene	ND	0.02	0.004	
Toluene	ND	0.04	0.0064	
Ethylbenzene	ND	0.04	0.006	
m&p-Xylene	ND	0.08	0.0028	
o-Xylene	ND	0.04	0.0076	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID: GB3078
 Date Prepared: 5/28/02
 Date Analyzed: 5/28/02
 QC Batch ID: GB3078

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
Benzene	0	1	0.908	90.8	0.916	91.6	0.88	
Toluene	0	1	0.945	94.5	0.983	98.3	3.9	
Ethylbenzene	0	1	0.938	93.8	0.953	95.3	1.6	
m p-Xylene	0	2	2.02	101	2.06	103	2	
o-Xylene	0	1	1.01	101	1.03	103	2	

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID: OW1-5'
 Lab ID: 106043-01
 Date Prepared: 5/28/02
 Date Analyzed: 5/28/02
 QC Batch ID: GB3078

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Compound Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	MSD Result (mg/kg)	MSD % Rec.	RPD	Flag
Benzene	0	1.05	0.859	81.5	0.862	84.9	4.1	
Toluene	0	1.05	0.919	87.2	0.887	87.4	0.23	
Ethylbenzene	0	1.05	0.907	86	0.919	90.5	5.1	
m,p-Xylene	0	2.11	1.95	92.7	1.97	96.9	4.4	
o-Xylene	0	1.05	0.971	92.1	0.984	96.9	5.1	

STL Seattle

Lab ID:	Method Blank - GB3078
Date Received:	-
Date Prepared:	5/28/02
Date Analyzed:	5/28/02
% Solids	1
Dilution Factor	

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	98.2		50	150
Bromofluorobenzene	104		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
Gasoline by NWTPH-G	ND	4	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID: GB3078
Date Prepared: 5/28/02
Date Analyzed: 5/28/02
QC Batch ID: GB3078

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
Gasoline by NWTPH-G	0	50	48.2	96.4	48.1	96.2	-0.21	

STL Seattle

Duplicate Report

Client Sample ID: OW1-5'
Lab ID: 106043-01
Date Prepared: 5/28/02
Date Analyzed: 5/28/02
QC Batch ID: GB3078

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
Gasoline by NWTPH-G	0	0	NC	

Company: SCS Engineers
 Project No.: 04202001.01
 Project Name: Wheeler Former Gas Station
 Project Manager: [Signature]

Turnaround Required (in working days)
 (Check One)
☐ Same Day ☐ 1 Day
☐ 2 Day ☐ 3 Day
☒ Standard
 (Hydrocarbon analyses: 5 days,
 All other analyses: 7 days)
☐ _____ (other)

Project Manager: _____

Laboratory No. _____

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Lab Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCBs by 8082	Pesticides by 8081	Herbicides by 8151A	Total RCRA Metals (8)	Priority Pollutant Metals (13)	TCLP Metals	VPH	LEPH	Moisture
1	OW1-5'	5-16-02		Soil	1		X														X
2	OW1-10'																				X
3	OW1-15'						X														X
4	OW2-5'																				X
5	OW2-10'																				X
6	OW2-15'						X														X
7	OW3-5'						X														X
8	OW3-10'						X														X
9	OW3-15'						X														X

RELINQUISHED BY: [Signature] DATE: 5-17-02 RECEIVED BY: [Signature] DATE: 5-17-02
 FIRM: SCS Engineers TIME: 10:13 FIRM: STL TIME: 10:13 AM
 RELINQUISHED BY: [Signature] DATE: 5-17-02 RECEIVED BY: [Signature] DATE: 5/17/02
 FIRM: [Signature] TIME: 12:05 FIRM: SLC TIME: 12:05 PM
 REVIEWED BY: [Signature] DATE REVIEWED: _____

COMMENTS:

Chromatographs with final report ☐

**SEVERN
TRENT
SERVICES**

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: June 26, 2002

TO: Brian Doan
SCS Engineers
2405 140th Ave. N. E., Suite 107
Bellevue, WA 98005

PROJECT: Meeker Square Former Gas Station

REPORT NUMBER: 106499

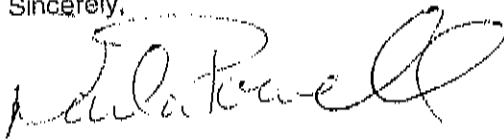
TOTAL NUMBER OF PAGES: 22

Enclosed are the test results for seven samples received at STL Seattle on June 7, 2002.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,



Darla Powell
Project Manager

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STL Seattle

Sample Identification:

<u>Lab. No.</u>	<u>Client ID</u>	<u>Date/Time Sampled</u>	<u>Matrix</u>
106499-1	OW1	06-06-02 *	Liquid
106499-2	OW2	06-06-02 *	Liquid
106499-3	OW3	06-06-02 *	Liquid
106499-4	MW3GS	06-06-02 *	Liquid
106499-5	DUPGS	06-06-02 *	Liquid
106499-6	Decon Drum	06-06-02 *	Liquid
106499-7	Old Drums	06-06-02 *	Liquid

* - Sampling time not specified for this sample

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STL Seattle

Client Name	SCS Engineers
Client ID:	OW1
Lab ID:	106499-01
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	-
Dilution Factor	1

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	104		78	127
Bromofluorobenzene	116		81	135

Analyte	Result (mg/L)	PQL	MDL	Flags
Benzene	ND	0.0005	0.00016	
Toluene	ND	0.001	0.00017	
Ethylbenzene	ND	0.001	0.00018	
m&p-Xylene	ND	0.002	0.00017	
o-Xylene	ND	0.001	0.00021	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW2
Lab ID:	106499-02
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	"
Dilution Factor	1

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	100		78	127
Bromofluorobenzene	111		81	135

Analyte	Result (mg/L)	PQL	MDL	Flags
Benzene	ND	0.0005	0.00016	
Toluene	ND	0.001	0.00017	
Ethylbenzene	ND	0.001	0.00018	
m&p-Xylene	ND	0.002	0.00017	
o-Xylene	ND	0.001	0.00021	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW3
Lab ID:	106499-03
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	-
Dilution Factor	2

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	91.2		78	127
Bromofluorobenzene	93.4		81	135

Analyte	Result (mg/L)	PQL	MDL	Flags
Benzene	0.125	0.001	0.00032	
Toluene	0.00262	0.002	0.00034	
Ethylbenzene	0.119	0.002	0.00036	
m&p-Xylene	0.0443	0.004	0.00034	
o-Xylene	0.0021	0.002	0.00042	

STL Seattle

Client Name	SCS Engineers
Client ID:	MW3GS
Lab ID:	106499-04
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	-
Dilution Factor	1

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	103		78	127
Bromofluorobenzene	113		81	135

Analyte	Result (mg/L)	PQL	MDL	Flags
Benzene	ND	0.0005	0.00016	
Toluene	ND	0.001	0.00017	
Ethylbenzene	ND	0.001	0.00018	
m&p-Xylene	ND	0.002	0.00017	
o-Xylene	ND	0.001	0.00021	

STL Seattle

Client Name	SCS Engineers
Client ID:	DUPGS
Lab ID:	106499-05
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	"
Dilution Factor	2

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	94.1		78	127
Bromofluorobenzene	96.1		81	135

Analyte	Result (mg/L)	PQL	MDL	Flags
Benzene	0.125	0.001	0.00032	
Toluene	0.00255	0.002	0.00034	
Ethylbenzene	0.12	0.002	0.00036	
m&p-Xylene	0.0446	0.004	0.00034	
o-Xylene	0.00203	0.002	0.00042	

STL Seattle

Client Name	SCS Engineers
Client ID:	DECON DRUM
Lab ID:	106499-06
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	"
Dilution Factor	1

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	98.8		78	127
Bromofluorobenzene	110		81	135

Analyte	Result (mg/L)	PQL	MDL	Flags
Benzene	0.00182	0.0005	0.00016	
Toluene	0.0906	0.001	0.00017	
Ethylbenzene	0.00253	0.001	0.00018	
m&p-Xylene	0.00706	0.002	0.00017	
o-Xylene	0.00301	0.001	0.00021	

STL Seattle

Client Name	SCS Engineers
Client ID:	OLD DRUMS
Lab ID:	106499-07
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	-
Dilution Factor	1

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	99.9		78	127
Bromofluorobenzene	111		81	135

Analyte	Result (mg/L)	PQL	MDL	Flags
Benzene	ND	0.0005	0.00016	
Toluene	ND	0.001	0.00017	
Ethylbenzene	ND	0.001	0.00018	
m&p-Xylene	ND	0.002	0.00017	
o-Xylene	ND	0.001	0.00021	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW1
Lab ID:	106499-01
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	-
Dilution Factor	1

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	99.6		50	150
Bromofluorobenzene	105		50	150

Analyte	Result (mg/L)	PQL	Flags
Gasoline by NWTPH-G	ND	0.1	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW2
Lab ID:	106499-02
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	-
Dilution Factor	1

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	96.2		50	150
Bromofluorobenzene	102		50	150

Analyte	Result (mg/L)	PQL	Flags
Gasoline by NWTPH-G	ND	0.1	

STL Seattle

Client Name	SCS Engineers
Client ID:	OW3
Lab ID:	106499-03
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	-
Dilution Factor	2

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	104		50	150
Bromofluorobenzene	100		50	150

Analyte	Result (mg/L)	PQL	Flags
Gasoline by NWTPH-G	4.55	0.2	

STL Seattle

Client Name	SCS Engineers
Client ID:	MW3GS
Lab ID:	106499-04
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	-
Dilution Factor	1

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	98.3		50	150
Bromofluorobenzene	103		50	150

Analyte	Result (mg/L)	PQL	Flags
Gasoline by NWTPH-G	ND	0.1	

STL Seattle

Client Name	SCS Engineers
Client ID:	DUPGS
Lab ID:	106499-05
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	-
Dilution Factor	2

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	106		50	150
Bromofluorobenzene	102		50	150

Analyte	Result (mg/L)	PQL	Flags
Gasoline by NWTPH-G	4.62	0.2	

STL Seattle

Client Name	SCS Engineers
Client ID:	DECON DRUM
Lab ID:	106499-06
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	-
Dilution Factor	1

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	94.5		50	150
Bromofluorobenzene	101		50	150

Analyte	Result (mg/L)	PQL	Flags
Gasoline by NWTPH-G	0.445	0.1	

STL Seattle

Client Name	SCS Engineers
Client ID:	OLD DRUMS
Lab ID:	106499-07
Date Received:	6/7/02
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	-
Dilution Factor	1

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	95.7		50	150
Bromofluorobenzene	101		50	150

Analyte	Result (mg/L)	PQL	Flags
Gasoline by NWTPH-G	ND	0.1	

STL Seattle

Lab ID:	Method Blank - GB3117
Date Received:	6/19/02
Date Prepared:	6/19/02
Date Analyzed:	-
% Solids	1
Dilution Factor	

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	103		78	127
Bromofluorobenzene	112		81	135

Analyte	Result (mg/L)	PQL	MDL	Flags
Benzene	ND	0.0005	0.00016	
Toluene	ND	0.001	0.00017	
Ethylbenzene	ND	0.001	0.00018	
m&p-Xylene	ND	0.002	0.00017	
o-Xylene	ND	0.001	0.00021	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID: GB3117
 Date Prepared: 6/19/02
 Date Analyzed: 6/19/02
 QC Batch ID: GB3117

Volatile Aromatic Hydrocarbons by USEPA Method 8021B/5030B Modified

Compound Name	Blank Result (mg/L)	Spike Amount (mg/L)	BS Result (mg/L)	BS % Rec.	BSD Result (mg/L)	BSD % Rec.	RPD	Flag
Benzene	0	0.025	0.0258	103	0.0253	101	-2	
Toluene	0	0.025	0.0271	109	0.0269	107	-1.9	
Ethylbenzene	0	0.025	0.0268	107	0.0262	105	-1.9	
m,p-Xylene	0	0.05	0.054	108	0.0532	106	-1.9	
o-Xylene	0	0.025	0.0272	109	0.0274	110	0.91	

STL Seattle

Lab ID:	Method Blank - GB3117
Date Received:	-
Date Prepared:	6/19/02
Date Analyzed:	6/19/02
% Solids	-
Dilution Factor	1

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Trifluorotoluene	99.3		50	150
Bromofluorobenzene	102		50	150

Analyte	Result (mg/L)	PQL	Flags
Gasoline by NWTPH-G	ND	0.1	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID: GB3117
Date Prepared: 6/19/02
Date Analyzed: 6/19/02
QC Batch ID: GB3117

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Compound Name	Blank Result (mg/L)	Spike Amount (mg/L)	BS Result (mg/L)	BS % Rec.	BSD Result (mg/L)	BSD % Rec.	RPD	Flag
Gasoline by NWTPH-G	0	1.25	1.31	105	1.27	102	-2.9	

STL Seattle
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QUALIFIERS AND ABBREVIATIONS

- 1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).
- 2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).
- 11: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be $\leq 40\%$.
- 22: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be $> 40\%$. The higher result was reported unless anomalies were noted.
- 4: GC/MS confirmation was performed. The result derived from the original analysis was reported.
- 2: The reported result for this analyte was calculated based on a secondary dilution factor.
- 3: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.
- 7: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

✓ ML: Maximum Contaminant Level

MDL: Method Detection Limit

✓ See analytical narrative.

ND: Not Detected

✓ L: Practical Quantitation Limit

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

2: Contaminant does not appear to be "typical" product.

X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike recovery was not determined due to the required dilution.

6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

✓7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

X8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.



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Migizi Group, Inc.
Jason Souza
3227 178th St SE
Bothell, WA 98012

RE: Meeker Square
Lab ID: 1408261

September 05, 2014

Attention Jason Souza:

Fremont Analytical, Inc. received 7 sample(s) on 8/28/2014 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury by EPA Method 245.1
Polychlorinated Biphenyls (PCB) by EPA 8082
Semi-Volatile Organic Compounds by EPA Method 8270
Total Metals by EPA Method 200.8
Volatile Organic Compounds by EPA Method 8260

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,

Chelsea Ward
Project Manager

CLIENT: Migizi Group, Inc.
Project: Meeker Square
Lab Order: 1408261

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1408261-001	MW-1	08/27/2014 12:00 AM	08/28/2014 8:10 AM
1408261-002	MW-2	08/27/2014 12:00 AM	08/28/2014 8:10 AM
1408261-003	MW-3	08/27/2014 12:00 AM	08/28/2014 8:10 AM
1408261-004	OW-1	08/27/2014 12:00 AM	08/28/2014 8:10 AM
1408261-005	OW-2	08/27/2014 12:00 AM	08/28/2014 8:10 AM
1408261-006	OW-3	08/27/2014 12:00 AM	08/28/2014 8:10 AM
1408261-007	TRIP	08/25/2014 10:00 AM	08/28/2014 8:10 AM

CLIENT: Migizi Group, Inc.**Project:** Meeker Square

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").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. 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 and the MS/MSD 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.



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-004

Matrix: Water

Client Sample ID: OW-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8557

Analyst: EC

Diesel (Fuel Oil)	ND	50.0		µg/L	1	9/2/2014 11:05:00 PM
Heavy Oil	ND	100		µg/L	1	9/2/2014 11:05:00 PM
Surr: 2-Fluorobiphenyl	67.1	50-150		%REC	1	9/2/2014 11:05:00 PM
Surr: o-Terphenyl	84.6	50-150		%REC	1	9/2/2014 11:05:00 PM

Semi-Volatile Organic Compounds by EPA Method 8270

Batch ID: 8554

Analyst: MD

Phenol	ND	2.00		µg/L	1	9/2/2014 5:41:00 PM
2-Chlorophenol	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Benzyl alcohol	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Bis(2-chloroethyl) ether	ND	2.00		µg/L	1	9/2/2014 5:41:00 PM
2-Methylphenol (o-cresol)	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Hexachloroethane	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
N-Nitrosodi-n-propylamine	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Nitrobenzene	ND	2.00		µg/L	1	9/2/2014 5:41:00 PM
Isophorone	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
4-Methylphenol (p-cresol)	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
2-Nitrophenol	ND	2.00		µg/L	1	9/2/2014 5:41:00 PM
2,4-Dimethylphenol	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Bis(2-chloroethoxy)methane	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
2,4-Dichlorophenol	ND	2.00		µg/L	1	9/2/2014 5:41:00 PM
1,2,4-Trichlorobenzene	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Naphthalene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
4-Chloroaniline	ND	5.00		µg/L	1	9/2/2014 5:41:00 PM
Hexachlorobutadiene	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
4-Chloro-3-methylphenol	ND	5.00		µg/L	1	9/2/2014 5:41:00 PM
2-Methylnaphthalene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
1-Methylnaphthalene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Hexachlorocyclopentadiene	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
2,4,6-Trichlorophenol	ND	2.00		µg/L	1	9/2/2014 5:41:00 PM
2,4,5-Trichlorophenol	ND	2.00		µg/L	1	9/2/2014 5:41:00 PM
2-Chloronaphthalene	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-004

Matrix: Water

Client Sample ID: OW-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Semi-Volatile Organic Compounds by EPA Method 8270

Batch ID: 8554

Analyst: MD

2-Nitroaniline	ND	5.00		µg/L	1	9/2/2014 5:41:00 PM
Acenaphthene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Dimethylphthalate	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
2,6-Dinitrotoluene	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Acenaphthylene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
2,4-Dinitrophenol	ND	2.00		µg/L	1	9/2/2014 5:41:00 PM
Dibenzofuran	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
2,4-Dinitrotoluene	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
4-Nitrophenol	ND	5.00		µg/L	1	9/2/2014 5:41:00 PM
Fluorene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
4-Chlorophenyl phenyl ether	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Diethylphthalate	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
4,6-Dinitro-2-methylphenol	ND	5.00		µg/L	1	9/2/2014 5:41:00 PM
4-Bromophenyl phenyl ether	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Hexachlorobenzene	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Pentachlorophenol	ND	2.00		µg/L	1	9/2/2014 5:41:00 PM
Phenanthrene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Anthracene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Carbazole	ND	5.00		µg/L	1	9/2/2014 5:41:00 PM
Di-n-butyl phthalate	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Fluoranthene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Pyrene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Benzyl Butylphthalate	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
bis(2-Ethylhexyl)adipate	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Benz[a]anthracene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Chrysene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Bis(2-ethylhexyl) phthalate	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Di-n-octyl phthalate	ND	1.00		µg/L	1	9/2/2014 5:41:00 PM
Benzo (b) fluoranthene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Benzo (k) fluoranthene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Benzo[a]pyrene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Indeno (1,2,3-cd) pyrene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Dibenzo (a,h) anthracene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Benzo (g,h,i) perylene	ND	0.500		µg/L	1	9/2/2014 5:41:00 PM
Surr: 2,4,6-Tribromophenol	50.4	18-139		%REC	1	9/2/2014 5:41:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-004

Matrix: Water

Client Sample ID: OW-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Semi-Volatile Organic Compounds by EPA Method 8270

Batch ID: 8554

Analyst: MD

Surr: 2-Fluorobiphenyl	74.4	23.3-118		%REC	1	9/2/2014 5:41:00 PM
Surr: Nitrobenzene-d5	82.7	21.9-139		%REC	1	9/2/2014 5:41:00 PM
Surr: Phenol-d6	8.39	10-103	S	%REC	1	9/2/2014 5:41:00 PM
Surr: p-Terphenyl	119	41.3-140		%REC	1	9/2/2014 5:41:00 PM

NOTES:

S - Laboratory technical control limit for Phenol-d6 is below 10.

Gasoline by NWTPH-Gx

Batch ID: R16482

Analyst: BC

Gasoline	ND	50.0		µg/L	1	8/29/2014 12:54:00 AM
Surr: Toluene-d8	96.0	65-135		%REC	1	8/29/2014 12:54:00 AM
Surr: 4-Bromofluorobenzene	98.7	65-135		%REC	1	8/29/2014 12:54:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R16477

Analyst: BC

Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Chloromethane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Vinyl chloride	ND	0.200		µg/L	1	8/29/2014 12:54:00 AM
Bromomethane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Chloroethane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Methylene chloride	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,1-Dichloroethane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
2,2-Dichloropropane	ND	2.00		µg/L	1	8/29/2014 12:54:00 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Chloroform	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,1-Dichloropropene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Carbon tetrachloride	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,2-Dichloroethane (EDC)	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Benzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	8/29/2014 12:54:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-004

Matrix: Water

Client Sample ID: OW-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16477

Analyst: BC

1,2-Dichloropropane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Bromodichloromethane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Dibromomethane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Toluene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,3-Dichloropropane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Dibromochloromethane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,2-Dibromoethane (EDB)	ND	0.0600		µg/L	1	8/29/2014 12:54:00 AM
Chlorobenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Ethylbenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
m,p-Xylene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
o-Xylene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Styrene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Isopropylbenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Bromoform	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
n-Propylbenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Bromobenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
2-Chlorotoluene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
4-Chlorotoluene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
tert-Butylbenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	8/29/2014 12:54:00 AM
sec-Butylbenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
n-Butylbenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-004

Matrix: Water

Client Sample ID: OW-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16477

Analyst: BC

1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
Hexachlorobutadiene	ND	4.00		µg/L	1	8/29/2014 12:54:00 AM
Naphthalene	ND	1.00		µg/L	1	8/29/2014 12:54:00 AM
1,2,3-Trichlorobenzene	ND	4.00	*	µg/L	1	8/29/2014 12:54:00 AM
Surr: Dibromofluoromethane	106	61.7-130		%REC	1	8/29/2014 12:54:00 AM
Surr: Toluene-d8	98.6	40.1-139		%REC	1	8/29/2014 12:54:00 AM
Surr: 1-Bromo-4-fluorobenzene	97.2	68.2-127		%REC	1	8/29/2014 12:54:00 AM

NOTES:

* - Flagged value is not within established control limits.

Mercury by EPA Method 245.1

Batch ID: 8573

Analyst: MW

Mercury	ND	0.100		µg/L	1	8/29/2014 1:59:43 PM
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Total Metals by EPA Method 200.8

Batch ID: 8553

Analyst: TN

Arsenic	4.14	1.00		µg/L	1	8/28/2014 3:31:14 PM
Barium	18.3	0.500		µg/L	1	8/28/2014 3:31:14 PM
Cadmium	ND	0.200		µg/L	1	8/28/2014 3:31:14 PM
Chromium	1.74	0.500		µg/L	1	8/28/2014 3:31:14 PM
Lead	ND	1.00		µg/L	1	8/28/2014 3:31:14 PM
Selenium	ND	1.00		µg/L	1	8/28/2014 3:31:14 PM
Silver	ND	0.200		µg/L	1	8/28/2014 3:31:14 PM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-005

Matrix: Water

Client Sample ID: OW-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8557

Analyst: EC

Diesel (Fuel Oil)	ND	50.0		µg/L	1	9/2/2014 11:36:00 PM
Heavy Oil	ND	100		µg/L	1	9/2/2014 11:36:00 PM
Surr: 2-Fluorobiphenyl	66.6	50-150		%REC	1	9/2/2014 11:36:00 PM
Surr: o-Terphenyl	79.7	50-150		%REC	1	9/2/2014 11:36:00 PM

Semi-Volatile Organic Compounds by EPA Method 8270

Batch ID: 8554

Analyst: MD

Phenol	ND	2.00		µg/L	1	9/2/2014 6:04:00 PM
2-Chlorophenol	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Benzyl alcohol	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Bis(2-chloroethyl) ether	ND	2.00		µg/L	1	9/2/2014 6:04:00 PM
2-Methylphenol (o-cresol)	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Hexachloroethane	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
N-Nitrosodi-n-propylamine	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Nitrobenzene	ND	2.00		µg/L	1	9/2/2014 6:04:00 PM
Isophorone	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
4-Methylphenol (p-cresol)	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
2-Nitrophenol	ND	2.00		µg/L	1	9/2/2014 6:04:00 PM
2,4-Dimethylphenol	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Bis(2-chloroethoxy)methane	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
2,4-Dichlorophenol	ND	2.00		µg/L	1	9/2/2014 6:04:00 PM
1,2,4-Trichlorobenzene	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Naphthalene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
4-Chloroaniline	ND	5.00		µg/L	1	9/2/2014 6:04:00 PM
Hexachlorobutadiene	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
4-Chloro-3-methylphenol	ND	5.00		µg/L	1	9/2/2014 6:04:00 PM
2-Methylnaphthalene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
1-Methylnaphthalene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Hexachlorocyclopentadiene	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
2,4,6-Trichlorophenol	ND	2.00		µg/L	1	9/2/2014 6:04:00 PM
2,4,5-Trichlorophenol	ND	2.00		µg/L	1	9/2/2014 6:04:00 PM
2-Chloronaphthalene	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-005

Matrix: Water

Client Sample ID: OW-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Semi-Volatile Organic Compounds by EPA Method 8270

Batch ID: 8554

Analyst: MD

2-Nitroaniline	ND	5.00		µg/L	1	9/2/2014 6:04:00 PM
Acenaphthene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Dimethylphthalate	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
2,6-Dinitrotoluene	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Acenaphthylene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
2,4-Dinitrophenol	ND	2.00		µg/L	1	9/2/2014 6:04:00 PM
Dibenzofuran	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
2,4-Dinitrotoluene	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
4-Nitrophenol	ND	5.00		µg/L	1	9/2/2014 6:04:00 PM
Fluorene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
4-Chlorophenyl phenyl ether	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Diethylphthalate	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
4,6-Dinitro-2-methylphenol	ND	5.00		µg/L	1	9/2/2014 6:04:00 PM
4-Bromophenyl phenyl ether	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Hexachlorobenzene	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Pentachlorophenol	ND	2.00		µg/L	1	9/2/2014 6:04:00 PM
Phenanthrene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Anthracene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Carbazole	ND	5.00		µg/L	1	9/2/2014 6:04:00 PM
Di-n-butyl phthalate	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Fluoranthene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Pyrene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Benzyl Butylphthalate	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
bis(2-Ethylhexyl)adipate	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Benz[a]anthracene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Chrysene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Bis(2-ethylhexyl) phthalate	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Di-n-octyl phthalate	ND	1.00		µg/L	1	9/2/2014 6:04:00 PM
Benzo (b) fluoranthene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Benzo (k) fluoranthene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Benzo[a]pyrene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Indeno (1,2,3-cd) pyrene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Dibenzo (a,h) anthracene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Benzo (g,h,i) perylene	ND	0.500		µg/L	1	9/2/2014 6:04:00 PM
Surr: 2,4,6-Tribromophenol	53.6	18-139		%REC	1	9/2/2014 6:04:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-005

Matrix: Water

Client Sample ID: OW-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Semi-Volatile Organic Compounds by EPA Method 8270

Batch ID: 8554

Analyst: MD

Surr: 2-Fluorobiphenyl	83.6	23.3-118	%REC	1	9/2/2014 6:04:00 PM
Surr: Nitrobenzene-d5	93.5	21.9-139	%REC	1	9/2/2014 6:04:00 PM
Surr: Phenol-d6	10.3	10-103	%REC	1	9/2/2014 6:04:00 PM
Surr: p-Terphenyl	126	41.3-140	%REC	1	9/2/2014 6:04:00 PM

Gasoline by NWTPH-Gx

Batch ID: R16482

Analyst: BC

Gasoline	ND	50.0	µg/L	1	8/29/2014 1:22:00 AM
Surr: Toluene-d8	97.0	65-135	%REC	1	8/29/2014 1:22:00 AM
Surr: 4-Bromofluorobenzene	104	65-135	%REC	1	8/29/2014 1:22:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R16477

Analyst: BC

Dichlorodifluoromethane (CFC-12)	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
Chloromethane	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
Vinyl chloride	ND	0.200	µg/L	1	8/29/2014 1:22:00 AM
Bromomethane	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
Trichlorofluoromethane (CFC-11)	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
Chloroethane	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
1,1-Dichloroethene	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
Methylene chloride	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
trans-1,2-Dichloroethene	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
1,1-Dichloroethane	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
2,2-Dichloropropane	ND	2.00	µg/L	1	8/29/2014 1:22:00 AM
cis-1,2-Dichloroethene	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
Chloroform	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
1,1,1-Trichloroethane (TCA)	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
1,1-Dichloropropene	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
Carbon tetrachloride	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
1,2-Dichloroethane (EDC)	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
Benzene	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
Trichloroethene (TCE)	ND	0.500	µg/L	1	8/29/2014 1:22:00 AM
1,2-Dichloropropane	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM
Bromodichloromethane	ND	1.00	µg/L	1	8/29/2014 1:22:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-005

Matrix: Water

Client Sample ID: OW-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16477

Analyst: BC

Dibromomethane	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
Toluene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,3-Dichloropropane	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
Dibromochloromethane	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,2-Dibromoethane (EDB)	ND	0.0600		µg/L	1	8/29/2014 1:22:00 AM
Chlorobenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
Ethylbenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
m,p-Xylene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
o-Xylene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
Styrene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
Isopropylbenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
Bromoform	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
n-Propylbenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
Bromobenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
2-Chlorotoluene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
4-Chlorotoluene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
tert-Butylbenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	8/29/2014 1:22:00 AM
sec-Butylbenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
n-Butylbenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
Hexachlorobutadiene	ND	4.00		µg/L	1	8/29/2014 1:22:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-005

Matrix: Water

Client Sample ID: OW-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16477

Analyst: BC

Naphthalene	ND	1.00		µg/L	1	8/29/2014 1:22:00 AM
1,2,3-Trichlorobenzene	ND	4.00	*	µg/L	1	8/29/2014 1:22:00 AM
Surr: Dibromofluoromethane	103	61.7-130		%REC	1	8/29/2014 1:22:00 AM
Surr: Toluene-d8	97.6	40.1-139		%REC	1	8/29/2014 1:22:00 AM
Surr: 1-Bromo-4-fluorobenzene	103	68.2-127		%REC	1	8/29/2014 1:22:00 AM

NOTES:

* - Flagged value is not within established control limits.

Mercury by EPA Method 245.1

Batch ID: 8573

Analyst: MW

Mercury	ND	0.100		µg/L	1	8/29/2014 2:01:24 PM
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Total Metals by EPA Method 200.8

Batch ID: 8553

Analyst: TN

Arsenic	1.68	1.00		µg/L	1	8/28/2014 3:44:56 PM
Barium	11.1	0.500		µg/L	1	8/28/2014 3:44:56 PM
Cadmium	ND	0.200		µg/L	1	8/28/2014 3:44:56 PM
Chromium	1.15	0.500		µg/L	1	8/28/2014 3:44:56 PM
Lead	ND	1.00		µg/L	1	8/28/2014 3:44:56 PM
Selenium	ND	1.00		µg/L	1	8/28/2014 3:44:56 PM
Silver	ND	0.200		µg/L	1	8/28/2014 3:44:56 PM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-006

Matrix: Water

Client Sample ID: OW-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polychlorinated Biphenyls (PCB) by EPA 8082

Batch ID: 8422

Analyst: NG

Aroclor 1016	ND	0.200		µg/L	1	9/2/2014 1:46:00 AM
Aroclor 1221	ND	0.200		µg/L	1	9/2/2014 1:46:00 AM
Aroclor 1232	ND	0.200		µg/L	1	9/2/2014 1:46:00 AM
Aroclor 1242	ND	0.200		µg/L	1	9/2/2014 1:46:00 AM
Aroclor 1248	ND	0.200		µg/L	1	9/2/2014 1:46:00 AM
Aroclor 1254	ND	0.200		µg/L	1	9/2/2014 1:46:00 AM
Aroclor 1260	ND	0.200		µg/L	1	9/2/2014 1:46:00 AM
Aroclor 1262	ND	0.200		µg/L	1	9/2/2014 1:46:00 AM
Aroclor 1268	ND	0.200		µg/L	1	9/2/2014 1:46:00 AM
Total PCBs	ND	0.200		µg/L	1	9/2/2014 1:46:00 AM
Surr: Decachlorobiphenyl	137	45.1-140		%REC	1	9/2/2014 1:46:00 AM
Surr: Tetrachloro-m-xylene	151	30.1-116	S	%REC	1	9/2/2014 1:46:00 AM

NOTES:

S - Surrogate outside recovery limits. Minimum method criterion of one surrogate within established recovery limits was met.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8557

Analyst: EC

Diesel (Fuel Oil)	ND	50.0		µg/L	1	9/3/2014 12:07:00 AM
Diesel Range Organics (C12-C24)	851	50.0		µg/L	1	9/3/2014 12:07:00 AM
Heavy Oil	ND	100		µg/L	1	9/3/2014 12:07:00 AM
Surr: 2-Fluorobiphenyl	70.7	50-150		%REC	1	9/3/2014 12:07:00 AM
Surr: o-Terphenyl	73.5	50-150		%REC	1	9/3/2014 12:07:00 AM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).

Semi-Volatile Organic Compounds by EPA Method 8270

Batch ID: 8554

Analyst: MD

Phenol	ND	2.00		µg/L	1	9/2/2014 7:00:00 PM
2-Chlorophenol	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
Benzyl alcohol	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
Bis(2-chloroethyl) ether	ND	2.00		µg/L	1	9/2/2014 7:00:00 PM
2-Methylphenol (o-cresol)	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-006

Matrix: Water

Client Sample ID: OW-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Semi-Volatile Organic Compounds by EPA Method 8270

Batch ID: 8554

Analyst: MD

Hexachloroethane	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
N-Nitrosodi-n-propylamine	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
Nitrobenzene	ND	2.00		µg/L	1	9/2/2014 7:00:00 PM
Isophorone	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
4-Methylphenol (p-cresol)	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
2-Nitrophenol	ND	2.00		µg/L	1	9/2/2014 7:00:00 PM
2,4-Dimethylphenol	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
Bis(2-chloroethoxy)methane	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
2,4-Dichlorophenol	ND	2.00		µg/L	1	9/2/2014 7:00:00 PM
1,2,4-Trichlorobenzene	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
Naphthalene	32.3	0.500		µg/L	1	9/2/2014 7:00:00 PM
4-Chloroaniline	ND	5.00		µg/L	1	9/2/2014 7:00:00 PM
Hexachlorobutadiene	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
4-Chloro-3-methylphenol	ND	5.00		µg/L	1	9/2/2014 7:00:00 PM
2-Methylnaphthalene	9.22	0.500		µg/L	1	9/2/2014 7:00:00 PM
1-Methylnaphthalene	30.3	0.500		µg/L	1	9/2/2014 7:00:00 PM
Hexachlorocyclopentadiene	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
2,4,6-Trichlorophenol	ND	2.00		µg/L	1	9/2/2014 7:00:00 PM
2,4,5-Trichlorophenol	ND	2.00		µg/L	1	9/2/2014 7:00:00 PM
2-Chloronaphthalene	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
2-Nitroaniline	ND	5.00		µg/L	1	9/2/2014 7:00:00 PM
Acenaphthene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Dimethylphthalate	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
2,6-Dinitrotoluene	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
Acenaphthylene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
2,4-Dinitrophenol	ND	2.00		µg/L	1	9/2/2014 7:00:00 PM
Dibenzofuran	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
2,4-Dinitrotoluene	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
4-Nitrophenol	ND	5.00		µg/L	1	9/2/2014 7:00:00 PM
Fluorene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
4-Chlorophenyl phenyl ether	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
Diethylphthalate	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
4,6-Dinitro-2-methylphenol	ND	5.00		µg/L	1	9/2/2014 7:00:00 PM
4-Bromophenyl phenyl ether	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
Hexachlorobenzene	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-006

Matrix: Water

Client Sample ID: OW-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Semi-Volatile Organic Compounds by EPA Method 8270

Batch ID: 8554

Analyst: MD

Pentachlorophenol	ND	2.00		µg/L	1	9/2/2014 7:00:00 PM
Phenanthrene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Anthracene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Carbazole	ND	5.00		µg/L	1	9/2/2014 7:00:00 PM
Di-n-butyl phthalate	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
Fluoranthene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Pyrene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Benzyl Butylphthalate	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
bis(2-Ethylhexyl)adipate	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
Benz[a]anthracene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Chrysene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Bis(2-ethylhexyl) phthalate	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
Di-n-octyl phthalate	ND	1.00		µg/L	1	9/2/2014 7:00:00 PM
Benzo (b) fluoranthene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Benzo (k) fluoranthene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Benzo[a]pyrene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Indeno (1,2,3-cd) pyrene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Dibenzo (a,h) anthracene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Benzo (g,h,i) perylene	ND	0.500		µg/L	1	9/2/2014 7:00:00 PM
Surr: 2,4,6-Tribromophenol	49.1	18-139		%REC	1	9/2/2014 7:00:00 PM
Surr: 2-Fluorobiphenyl	81.4	23.3-118		%REC	1	9/2/2014 7:00:00 PM
Surr: Nitrobenzene-d5	102	21.9-139		%REC	1	9/2/2014 7:00:00 PM
Surr: Phenol-d6	10.6	10-103		%REC	1	9/2/2014 7:00:00 PM
Surr: p-Terphenyl	107	41.3-140		%REC	1	9/2/2014 7:00:00 PM

Gasoline by NWTPH-Gx

Batch ID: R16482

Analyst: BC

Gasoline	2,450	500	D	µg/L	10	8/29/2014 12:05:00 PM
Surr: Toluene-d8	101	65-135		%REC	1	8/29/2014 1:50:00 AM
Surr: 4-Bromofluorobenzene	101	65-135		%REC	1	8/29/2014 1:50:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R16477

Analyst: BC

Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Chloromethane	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-006

Matrix: Water

Client Sample ID: OW-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16477

Analyst: BC

Vinyl chloride	ND	0.200		µg/L	1	8/29/2014 1:50:00 AM
Bromomethane	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Chloroethane	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Methylene chloride	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,1-Dichloroethane	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
2,2-Dichloropropane	ND	2.00		µg/L	1	8/29/2014 1:50:00 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Chloroform	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,1-Dichloropropene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Carbon tetrachloride	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,2-Dichloroethane (EDC)	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Benzene	14.9	1.00		µg/L	1	8/29/2014 1:50:00 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	8/29/2014 1:50:00 AM
1,2-Dichloropropane	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Bromodichloromethane	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Dibromomethane	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Toluene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,3-Dichloropropane	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Dibromochloromethane	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,2-Dibromoethane (EDB)	ND	0.0600		µg/L	1	8/29/2014 1:50:00 AM
Chlorobenzene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Ethylbenzene	6.10	1.00		µg/L	1	8/29/2014 1:50:00 AM
m,p-Xylene	1.39	1.00		µg/L	1	8/29/2014 1:50:00 AM
o-Xylene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Styrene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-006

Matrix: Water

Client Sample ID: OW-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16477

Analyst: BC

Isopropylbenzene	48.6	10.0	D	µg/L	10	8/29/2014 12:05:00 PM
Bromoform	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
n-Propylbenzene	111	10.0	D	µg/L	10	8/29/2014 12:05:00 PM
Bromobenzene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
2-Chlorotoluene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
4-Chlorotoluene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
tert-Butylbenzene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,2,3-Trichloropropane	3.94	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	8/29/2014 1:50:00 AM
sec-Butylbenzene	10.1	1.00		µg/L	1	8/29/2014 1:50:00 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
n-Butylbenzene	11.6	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,2-Dibromo-3-chloropropane	23.5	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	8/29/2014 1:50:00 AM
Hexachlorobutadiene	ND	4.00		µg/L	1	8/29/2014 1:50:00 AM
Naphthalene	64.8	1.00		µg/L	1	8/29/2014 1:50:00 AM
1,2,3-Trichlorobenzene	ND	4.00	*	µg/L	1	8/29/2014 1:50:00 AM
Surr: Dibromofluoromethane	103	61.7-130		%REC	1	8/29/2014 1:50:00 AM
Surr: Toluene-d8	97.3	40.1-139		%REC	1	8/29/2014 1:50:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.3	68.2-127		%REC	1	8/29/2014 1:50:00 AM

NOTES:

* - Flagged value is not within established control limits.

Mercury by EPA Method 245.1

Batch ID: 8573

Analyst: MW

Mercury	ND	0.100		µg/L	1	8/29/2014 2:06:30 PM
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Total Metals by EPA Method 200.8

Batch ID: 8553

Analyst: TN

Arsenic	35.9	1.00		µg/L	1	8/28/2014 3:48:21 PM
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Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/27/2014

Project: Meeker Square

Lab ID: 1408261-006

Matrix: Water

Client Sample ID: OW-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 200.8

Batch ID: 8553

Analyst: TN

Barium	41.4	0.500		µg/L	1	8/28/2014 3:48:21 PM
Cadmium	ND	0.200		µg/L	1	8/28/2014 3:48:21 PM
Chromium	5.37	0.500		µg/L	1	8/28/2014 3:48:21 PM
Lead	1.40	1.00		µg/L	1	8/28/2014 3:48:21 PM
Selenium	ND	1.00		µg/L	1	8/28/2014 3:48:21 PM
Silver	ND	0.200		µg/L	1	8/28/2014 3:48:21 PM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/25/2014 10:00:00 AM

Project: Meeker Square

Lab ID: 1408261-007

Matrix: Water

Client Sample ID: TRIP

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16477

Analyst: BC

Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Chloromethane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Vinyl chloride	ND	0.200		µg/L	1	8/28/2014 4:59:00 PM
Bromomethane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Chloroethane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Methylene chloride	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,1-Dichloroethane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
2,2-Dichloropropane	ND	2.00		µg/L	1	8/28/2014 4:59:00 PM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Chloroform	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,1-Dichloropropene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Carbon tetrachloride	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,2-Dichloroethane (EDC)	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Benzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Trichloroethene (TCE)	ND	0.500		µg/L	1	8/28/2014 4:59:00 PM
1,2-Dichloropropane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Bromodichloromethane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Dibromomethane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Toluene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,3-Dichloropropane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Dibromochloromethane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,2-Dibromoethane (EDB)	ND	0.0600		µg/L	1	8/28/2014 4:59:00 PM
Chlorobenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Ethylbenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
m,p-Xylene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408261

Date Reported: 9/5/2014

Client: Migizi Group, Inc.

Collection Date: 8/25/2014 10:00:00 AM

Project: Meeker Square

Lab ID: 1408261-007

Matrix: Water

Client Sample ID: TRIP

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16477

Analyst: BC

o-Xylene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Styrene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Isopropylbenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Bromoform	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
n-Propylbenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Bromobenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
2-Chlorotoluene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
4-Chlorotoluene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
tert-Butylbenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	8/28/2014 4:59:00 PM
sec-Butylbenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
4-Isopropyltoluene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
n-Butylbenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
Hexachlorobutadiene	ND	4.00		µg/L	1	8/28/2014 4:59:00 PM
Naphthalene	ND	1.00		µg/L	1	8/28/2014 4:59:00 PM
1,2,3-Trichlorobenzene	ND	4.00	*	µg/L	1	8/28/2014 4:59:00 PM
Surr: Dibromofluoromethane	95.8	61.7-130		%REC	1	8/28/2014 4:59:00 PM
Surr: Toluene-d8	99.0	40.1-139		%REC	1	8/28/2014 4:59:00 PM
Surr: 1-Bromo-4-fluorobenzene	94.8	68.2-127		%REC	1	8/28/2014 4:59:00 PM

NOTES:

* - Flagged value is not within established control limits.

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
RL Reporting Limit

D Dilution was required
H Holding times for preparation or analysis exceeded
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT

Total Metals by EPA Method 200.8

Sample ID: MB-8553	SampType: MBLK	Units: µg/L			Prep Date: 8/28/2014			RunNo: 16472			
Client ID: MBLKW	Batch ID: 8553				Analysis Date: 8/28/2014			SeqNo: 331525			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	1.00									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.500									
Lead	ND	1.00									
Selenium	ND	1.00									
Silver	ND	0.200									

Sample ID: LCS-8553	SampType: LCS	Units: µg/L			Prep Date: 8/28/2014			RunNo: 16472			
Client ID: LCSW	Batch ID: 8553	Analysis Date: 8/28/2014						SeqNo: 331526			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	95.4	1.00	100.0	0	95.4	85	115				
Barium	96.2	0.500	100.0	0	96.2	85	115				
Cadmium	4.99	0.200	5.000	0	99.9	85	115				
Chromium	104	0.500	100.0	0	104	85	115				
Lead	50.2	1.00	50.00	0	100	85	115				
Selenium	10.9	1.00	10.00	0	109	85	115				
Silver	4.65	0.200	5.000	0	92.9	85	115				

Sample ID: 1408261-004DDUP	SampType: DUP	Units: µg/L				Prep Date: 8/28/2014				RunNo: 16472		
Client ID: OW-1	Batch ID: 8553					Analysis Date: 8/28/2014				SeqNo: 331528		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Arsenic	2.98	1.00						4.144	32.7	30	R
Barium	20.1	0.500						18.31	9.30	30	
Cadmium	ND	0.200						0		30	
Chromium	0.892	0.500						1.744	64.7	30	R

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT
Total Metals by EPA Method 200.8

Sample ID: 1408261-004DDUP	SampType: DUP	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16472		
Client ID: OW-1	Batch ID: 8553	Analysis Date: 8/28/2014						SeqNo: 331528			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.00						0		30	
Selenium	ND	1.00						0		30	
Silver	ND	0.200						0		30	

NOTES:

R - High RPD observed. The method is in control as indicated by the laboratory control sample (LCS).

Sample ID: 1408261-004DMS	SampType: MS	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16472		
Client ID: OW-1	Batch ID: 8553					Analysis Date: 8/28/2014			SeqNo: 331529		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	480	1.00	500.0	4.144	95.2	70	130				
Barium	516	0.500	500.0	18.31	99.5	70	130				
Cadmium	25.8	0.200	25.00	0.04800	103	70	130				
Chromium	513	0.500	500.0	1.744	102	70	130				
Lead	241	1.00	250.0	0.07950	96.6	70	130				
Selenium	52.0	1.00	50.00	0	104	70	130				
Silver	22.2	0.200	25.00	0	88.7	70	130				

Sample ID: 1408261-004DMSD	SampType: MSD	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16472		
Client ID: OW-1	Batch ID: 8553	Analysis Date: 8/28/2014							SeqNo: 331530		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	489	1.00	500.0	4.144	97.0	70	130	480.2	1.80	30	
Barium	511	0.500	500.0	18.31	98.5	70	130	515.8	0.959	30	
Cadmium	25.2	0.200	25.00	0.04800	101	70	130	25.82	2.24	30	
Chromium	536	0.500	500.0	1.744	107	70	130	513.2	4.31	30	
Lead	250	1.00	250.0	0.07950	100	70	130	241.5	3.47	30	
Selenium	54.1	1.00	50.00	0	108	70	130	51.98	4.09	30	

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT
Total Metals by EPA Method 200.8

Sample ID: 1408261-004DMSD	SampType: MSD	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16472		
Client ID: OW-1	Batch ID: 8553					Analysis Date: 8/28/2014			SeqNo: 331530		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	22.5	0.200	25.00	0	89.8	70	130	22.17	1.26	30	

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT

Mercury by EPA Method 245.1

Sample ID: MB-8573	SampType: MBLK	Units: µg/L			Prep Date: 8/29/2014			RunNo: 16492			
Client ID: MBLKW	Batch ID: 8573				Analysis Date: 8/29/2014			SeqNo: 331818			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.100

Sample ID: LCS-8573		SampType: LCS		Units: µg/L		Prep Date: 8/29/2014			RunNo: 16492		
Client ID: LCSW		Batch ID: 8573					Analysis Date: 8/29/2014			SeqNo: 331819	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 2.60 0.100 2.500 0 104 85 115

Sample ID: 1408273-001ADUP	SampType: DUP	Units: µg/L			Prep Date: 8/29/2014			RunNo: 16492			
Client ID: BATCH	Batch ID: 8573				Analysis Date: 8/29/2014			SeqNo: 331821			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.100 0 20

Sample ID: 1408273-001AMS		SampType: MS		Units: µg/L		Prep Date: 8/29/2014			RunNo: 16492		
Client ID: BATCH		Batch ID: 8573					Analysis Date: 8/29/2014			SeqNo: 331822	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 2.68 0.100 2.500 0 107 80 120

Sample ID: 1408273-001AMSD	SampType: MSD	Units: µg/L			Prep Date: 8/29/2014			RunNo: 16492			
Client ID: BATCH	Batch ID: 8573				Analysis Date: 8/29/2014			SeqNo: 331823			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 2.57 0.100 2.500 0 103 80 120 2.680 4.19 20

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: LCS-8557	SampType: LCS	Units: µg/L			Prep Date: 8/29/2014			RunNo: 16530			
Client ID: LCSW	Batch ID: 8557				Analysis Date: 9/2/2014			SeqNo: 332608			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	1,010	50.0	1,000	0	101	65	135				
Surr: 2-Fluorobiphenyl	58.8		80.00		73.5	50	150				
Surr: o-Terphenyl	68.7		80.00		85.9	50	150				

Sample ID: MB-8557	SampType: MBLK	Units: µg/L				Prep Date: 8/29/2014				RunNo: 16530		
Client ID: MBLKW	Batch ID: 8557					Analysis Date: 9/2/2014				SeqNo: 332609		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Surr: 2-Fluorobiphenyl	47.7		80.00		59.7	50	150				
Surr: o-Terphenyl	63.7		80.00		79.6	50	150				

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8082

Sample ID: CCV PCB-C-8422		SampType: CCV		Units: %REC		Prep Date: 9/3/2014			RunNo: 16538		
Client ID: CCV		Batch ID: R16538					Analysis Date: 9/3/2014			SeqNo: 332837	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: Decachlorobiphenyl	52.3		50.00		105	54.3	143				
Surr: Tetrachloro-m-xylene	44.4		50.00		88.8	64.9	133				

Sample ID: 1408261-006EMS		SampType: MS		Units: µg/L		Prep Date: 8/28/2014			RunNo: 16538		
Client ID: OW-3		Batch ID: 8422		Analysis Date: 9/3/2014			SeqNo: 332838				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aroclor 1016	1.82	0.200	2.000	0	90.8	45.5	118				
Aroclor 1260	1.93	0.200	2.000	0	96.7	50.8	129				
Surr: Decachlorobiphenyl	278		200.0		139	45.1	140				
Surr: Tetrachloro-m-xylene	212		200.0		106	30.1	116				

Sample ID: CCV PCB-D-8422		SampType: CCV			Units: %REC		Prep Date: 9/3/2014			RunNo: 16538		
Client ID: CCV		Batch ID: R16538			Analysis Date: 9/3/2014					SeqNo: 332839		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Surr: Decachlorobiphenyl	51.6		50.00		103	54.3	143				
Surr: Tetrachloro-m-xylene	46.0		50.00		91.9	64.9	133				

Sample ID: LCS-8422		SampType: LCS			Units: µg/L		Prep Date: 8/28/2014			RunNo: 16538		
Client ID: LCSW		Batch ID: 8422			Analysis Date: 9/2/2014					SeqNo: 332842		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Aroclor 1016	1.28	0.200	2.000	0	63.8	38.2	129				
Aroclor 1260	1.55	0.200	2.000	0	77.4	43.3	126				
Surr: Decachlorobiphenyl	367		200.0		183	45.1	140				S
Surr: Tetrachloro-m-xylene	184		200.0		91.8	30.1	116				

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT
Polychlorinated Biphenyls (PCB) by EPA 8082

Sample ID: LCS-8422	SampType: LCS	Units: µg/L	Prep Date: 8/28/2014	RunNo: 16538							
Client ID: LCSW	Batch ID: 8422	Analysis Date: 9/2/2014	SeqNo: 332842								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

S - Surrogate outside recovery limits. Minimum method criterion of one surrogate within established recovery limits was met.

Sample ID: LCSD-8422	SampType: LCSD	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16538		
Client ID: LCSW02	Batch ID: 8422					Analysis Date: 9/2/2014			SeqNo: 332843		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	1.59	0.200	2.000	0	79.6	38.2	129	1.275	22.1	30	
Aroclor 1260	2.06	0.200	2.000	0	103	43.3	126	1.548	28.5	30	
Surr: Decachlorobiphenyl	398		200.0		199	45.1	140		0		S
Surr: Tetrachloro-m-xylene	214		200.0		107	30.1	116		0		

NOTES:

S - Surrogate outside recovery limits. Minimum method criterion of one surrogate within established recovery limits was met.

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT**Semi-Volatile Organic Compounds by EPA Method 8270**

Sample ID: MB-8554	SampType: MBLK	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16587		
Client ID: MBLKW	Batch ID: 8554	Analysis Date: 9/2/2014						SeqNo: 333615			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	ND	2.00									
2-Chlorophenol	ND	1.00									
1,3-Dichlorobenzene	ND	1.00									
1,4-Dichlorobenzene	ND	1.00									
1,2-Dichlorobenzene	ND	1.00									
Benzyl alcohol	ND	1.00									
Bis(2-chloroethyl) ether	ND	2.00									
2-Methylphenol (o-cresol)	ND	1.00									
Hexachloroethane	ND	1.00									
N-Nitrosodi-n-propylamine	ND	1.00									
Nitrobenzene	ND	2.00									
Isophorone	ND	1.00									
4-Methylphenol (p-cresol)	ND	1.00									
2-Nitrophenol	ND	2.00									
2,4-Dimethylphenol	ND	1.00									
Bis(2-chloroethoxy)methane	ND	1.00									
2,4-Dichlorophenol	ND	2.00									
1,2,4-Trichlorobenzene	ND	1.00									
Naphthalene	ND	0.500									
4-Chloroaniline	ND	5.00									
Hexachlorobutadiene	ND	1.00									
4-Chloro-3-methylphenol	ND	5.00									
2-Methylnaphthalene	ND	0.500									
1-Methylnaphthalene	ND	0.500									
Hexachlorocyclopentadiene	ND	1.00									
2,4,6-Trichlorophenol	ND	2.00									
2,4,5-Trichlorophenol	ND	2.00									
2-Chloronaphthalene	ND	1.00									
2-Nitroaniline	ND	5.00									

Qualifiers: B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits

D Dilution was required
J Analyte detected below quantitation limits
RL Reporting Limit

E Value above quantitation range
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT
Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: MB-8554	SampType: MBLK	Units: µg/L	Prep Date: 8/28/2014	RunNo: 16587							
Client ID: MBLKW	Batch ID: 8554		Analysis Date: 9/2/2014	SeqNo: 333615							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Acenaphthene	ND	0.500
Dimethylphthalate	ND	1.00
2,6-Dinitrotoluene	ND	1.00
Acenaphthylene	ND	0.500
2,4-Dinitrophenol	ND	2.00
Dibenzofuran	ND	1.00
2,4-Dinitrotoluene	ND	1.00
4-Nitrophenol	ND	5.00
Fluorene	ND	0.500
4-Chlorophenyl phenyl ether	ND	1.00
Diethylphthalate	ND	1.00
4,6-Dinitro-2-methylphenol	ND	5.00
4-Bromophenyl phenyl ether	ND	1.00
Hexachlorobenzene	ND	1.00
Pentachlorophenol	ND	2.00
Phenanthrene	ND	0.500
Anthracene	ND	0.500
Carbazole	ND	5.00
Di-n-butyl phthalate	ND	1.00
Fluoranthene	ND	0.500
Pyrene	ND	0.500
Benzyl Butylphthalate	ND	1.00
bis(2-Ethylhexyl)adipate	ND	1.00
Benz[a]anthracene	ND	0.500
Chrysene	ND	0.500
Bis(2-ethylhexyl) phthalate	ND	1.00
Di-n-octyl phthalate	ND	1.00
Benzo (b) fluoranthene	ND	0.500
Benzo (k) fluoranthene	ND	0.500

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT**Semi-Volatile Organic Compounds by EPA Method 8270**

Sample ID: MB-8554	SampType: MBLK	Units: µg/L			Prep Date: 8/28/2014			RunNo: 16587			
Client ID: MBLKW	Batch ID: 8554				Analysis Date: 9/2/2014			SeqNo: 333615			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzo[a]pyrene	ND	0.500									
Indeno (1,2,3-cd) pyrene	ND	0.500									
Dibenzo (a,h) anthracene	ND	0.500									
Benzo (g,h,i) perylene	ND	0.500									
Surr: 2,4,6-Tribromophenol	2.24		8.000		28.0	18	139				
Surr: 2-Fluorobiphenyl	1.98		4.000		49.6	23.3	118				
Surr: Nitrobenzene-d5	2.43		4.000		60.7	21.9	139				
Surr: Phenol-d6	0.641		8.000		8.01	10	103				S
Surr: p-Terphenyl	2.81		4.000		70.3	41.3	140				

NOTES:

S - Laboratory technical control limit for Phenol-d6 is below 10.

Sample ID: LCS-8554	SampType: LCS	Units: µg/L			Prep Date: 8/28/2014			RunNo: 16587			
Client ID: LCSW	Batch ID: 8554	Analysis Date: 9/2/2014						SeqNo: 333616			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Phenol	0.814	2.00	4.000	0	20.4	16.3	115				
2-Chlorophenol	2.06	1.00	4.000	0	51.5	25	112				
1,3-Dichlorobenzene	2.33	1.00	4.000	0	58.4	25	108				
1,4-Dichlorobenzene	2.33	1.00	4.000	0	58.4	25	110				
1,2-Dichlorobenzene	2.36	1.00	4.000	0	59.1	25	109				
Benzyl alcohol	3.30	1.00	4.000	0	82.4	20	96.5				
Bis(2-chloroethyl) ether	2.80	2.00	4.000	0	69.9	25	111				
2-Methylphenol (o-cresol)	1.77	1.00	4.000	0	44.3	25	101				
Hexachloroethane	2.32	1.00	4.000	0	57.9	25	109				
N-Nitrosodi-n-propylamine	3.22	1.00	4.000	0	80.5	25	122				
Nitrobenzene	2.46	2.00	4.000	0	61.5	25	110				
Isophorone	2.89	1.00	4.000	0	72.4	25	126				
4-Methylphenol (p-cresol)	0.884	1.00	2.000	0	44.2	25	113				

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: LCS-8554	SampType: LCS	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16587		
Client ID: LCSW	Batch ID: 8554	Analysis Date: 9/2/2014						SeqNo: 333616			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Nitrophenol	2.16	2.00	4.000	0	53.9	25	126				
2,4-Dimethylphenol	2.80	1.00	4.000	0	69.9	25	124				
Bis(2-chloroethoxy)methane	2.96	1.00	4.000	0	74.1	25	121				
2,4-Dichlorophenol	2.84	2.00	4.000	0	71.0	29.1	110				
1,2,4-Trichlorobenzene	2.44	1.00	4.000	0	60.9	25	113				
Naphthalene	2.69	0.500	4.000	0	67.2	25	115				
4-Chloroaniline	3.81	5.00	4.000	0	95.1	25	136				
Hexachlorobutadiene	2.11	1.00	4.000	0	52.7	25	111				
4-Chloro-3-methylphenol	3.56	5.00	4.000	0	88.9	32.3	122				
2-Methylnaphthalene	3.10	0.500	4.000	0	77.5	25	119				
1-Methylnaphthalene	3.08	0.500	4.000	0	77.0	25	117				
Hexachlorocyclopentadiene	1.75	1.00	4.000	0	43.7	25	125				
2,4,6-Trichlorophenol	2.97	2.00	4.000	0	74.2	25	133				
2,4,5-Trichlorophenol	3.24	2.00	4.000	0	81.1	25	125				
2-Chloronaphthalene	2.66	1.00	4.000	0	66.6	25	121				
2-Nitroaniline	3.46	5.00	4.000	0	86.5	25	121				
Acenaphthene	3.29	0.500	4.000	0	82.2	25	120				
Dimethylphthalate	3.02	1.00	4.000	0	75.6	25	133				
2,6-Dinitrotoluene	2.76	1.00	4.000	0	69.1	25	131				
Acenaphthylene	3.27	0.500	4.000	0	81.8	25	128				
2,4-Dinitrophenol	0.779	2.00	4.000	0	19.5	12.9	110				
Dibenzofuran	3.72	1.00	4.000	0	93.1	25	121				
2,4-Dinitrotoluene	2.89	1.00	4.000	0	72.4	25	132				
4-Nitrophenol	3.52	5.00	4.000	0	88.0	20	106				
Fluorene	3.64	0.500	4.000	0	91.0	25	127				
4-Chlorophenyl phenyl ether	3.02	1.00	4.000	0	75.5	25	124				
Diethylphthalate	3.40	1.00	4.000	0	85.0	31.3	142				
4,6-Dinitro-2-methylphenol	1.67	5.00	4.000	0	41.7	16.1	109				
4-Bromophenyl phenyl ether	3.01	1.00	4.000	0	75.2	25	130				

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: LCS-8554	SampType: LCS	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16587		
Client ID: LCSW	Batch ID: 8554	Analysis Date: 9/2/2014						SeqNo: 333616			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobenzene	2.78	1.00	4.000	0	69.5	29	120				
Pentachlorophenol	1.68	2.00	4.000	0	42.1	20	137				
Phenanthrene	3.62	0.500	4.000	0	90.5	34	125				
Anthracene	3.63	0.500	4.000	0	90.6	27.7	134				
Di-n-butyl phthalate	3.87	1.00	4.000	0	96.7	62	158				
Fluoranthene	3.93	0.500	4.000	0	98.3	34.8	143				
Pyrene	4.04	0.500	4.000	0	101	35.5	140				
Benzyl Butylphthalate	4.18	1.00	4.000	0	104	51.4	144				
Benz[a]anthracene	2.75	0.500	4.000	0	68.7	27.2	132				
Chrysene	3.73	0.500	4.000	0	93.3	39.5	123				
Bis(2-ethylhexyl) phthalate	4.47	1.00	4.000	0	112	44.7	180				
Di-n-octyl phthalate	4.07	1.00	4.000	0	102	52.8	164				
Benzo (b) fluoranthene	3.07	0.500	4.000	0	76.7	37.8	123				
Benzo (k) fluoranthene	3.29	0.500	4.000	0	82.2	25	144				
Benzo[a]pyrene	3.27	0.500	4.000	0	81.8	24.9	125				
Indeno (1,2,3-cd) pyrene	2.39	0.500	4.000	0	59.6	25	127				
Dibenzo (a,h) anthracene	2.26	0.500	4.000	0	56.6	25	132				
Benzo (g,h,i) perylene	2.39	0.500	4.000	0	59.8	25	133				
Surr: 2,4,6-Tribromophenol	3.54		4.000		88.5	18	139				
Surr: 2-Fluorobiphenyl	2.58		4.000		64.5	23.3	118				
Surr: Nitrobenzene-d5	3.22		4.000		80.6	21.9	139				
Surr: Phenol-d6	0.699		4.000		17.5	10	103				
Surr: p-Terphenyl	3.88		4.000		97.0	41.3	140				

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits

D Dilution was required
 J Analyte detected below quantitation limits
 RL Reporting Limit

E Value above quantitation range
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: 1408261-002BDUP	SampType: DUP	Units: µg/L			Prep Date: 8/28/2014			RunNo: 16587			
Client ID: MW-2	Batch ID: 8554				Analysis Date: 9/2/2014			SeqNo: 333619			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	ND	2.00						0		50	
2-Chlorophenol	ND	1.00						0		50	
1,3-Dichlorobenzene	ND	1.00						0		50	
1,4-Dichlorobenzene	ND	1.00						0		50	
1,2-Dichlorobenzene	ND	1.00						0		50	
Benzyl alcohol	ND	1.00						0		50	
Bis(2-chloroethyl) ether	ND	2.00						0		50	
2-Methylphenol (o-cresol)	ND	1.00						0		50	
Hexachloroethane	ND	1.00						0		50	
N-Nitrosodi-n-propylamine	ND	1.00						0		50	
Nitrobenzene	ND	2.00						0		50	
Isophorone	ND	1.00						0		50	
4-Methylphenol (p-cresol)	ND	1.00						0		50	
2-Nitrophenol	ND	2.00						0		50	
2,4-Dimethylphenol	ND	1.00						0		50	
Bis(2-chloroethoxy)methane	ND	1.00						0		50	
2,4-Dichlorophenol	ND	2.00						0		50	
1,2,4-Trichlorobenzene	ND	1.00						0		50	
Naphthalene	ND	0.500						0		50	
4-Chloroaniline	ND	5.00						0		50	
Hexachlorobutadiene	ND	1.00						0		50	
4-Chloro-3-methylphenol	ND	5.00						0		50	
2-Methylnaphthalene	ND	0.500						0		50	
1-Methylnaphthalene	ND	0.500						0		50	
Hexachlorocyclopentadiene	ND	1.00						0		50	
2,4,6-Trichlorophenol	ND	2.00						0		50	
2,4,5-Trichlorophenol	ND	2.00						0		50	
2-Chloronaphthalene	ND	1.00						0		50	
2-Nitroaniline	ND	5.00						0		50	

Qualifiers: B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits

D Dilution was required
J Analyte detected below quantitation limits
RL Reporting Limit

E Value above quantitation range
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT**Semi-Volatile Organic Compounds by EPA Method 8270**

Sample ID: 1408261-002BDUP	SampType: DUP	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16587		
Client ID: MW-2	Batch ID: 8554	Analysis Date: 9/2/2014						SeqNo: 333619			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.500						0		50	
Dimethylphthalate	ND	1.00						0		50	
2,6-Dinitrotoluene	ND	1.00						0		50	
Acenaphthylene	ND	0.500						0		50	
2,4-Dinitrophenol	ND	2.00						0		50	
Dibenzofuran	ND	1.00						0		50	
2,4-Dinitrotoluene	ND	1.00						0		50	
4-Nitrophenol	ND	5.00						0		50	
Fluorene	ND	0.500						0		50	
4-Chlorophenyl phenyl ether	ND	1.00						0		50	
Diethylphthalate	ND	1.00						0		50	
4,6-Dinitro-2-methylphenol	ND	5.00						0		50	
4-Bromophenyl phenyl ether	ND	1.00						0		50	
Hexachlorobenzene	ND	1.00						0		50	
Pentachlorophenol	ND	2.00						0		50	
Phenanthrene	ND	0.500						0		50	
Anthracene	ND	0.500						0		50	
Carbazole	ND	5.00						0		50	
Di-n-butyl phthalate	ND	1.00						0		50	
Fluoranthene	ND	0.500						0		50	
Pyrene	ND	0.500						0		50	
Benzyl Butylphthalate	ND	1.00						0		50	
bis(2-Ethylhexyl)adipate	ND	1.00						0		50	
Benz[a]anthracene	ND	0.500						0		50	
Chrysene	ND	0.500						0		50	
Bis(2-ethylhexyl) phthalate	ND	1.00						0		50	
Di-n-octyl phthalate	ND	1.00						0		50	
Benzo (b) fluoranthene	ND	0.500						0		50	
Benzo (k) fluoranthene	ND	0.500						0		50	

Qualifiers: B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits

D Dilution was required
J Analyte detected below quantitation limits
RL Reporting Limit

E Value above quantitation range
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT**Semi-Volatile Organic Compounds by EPA Method 8270**

Sample ID: 1408261-002BDUP	SampType: DUP	Units: µg/L			Prep Date: 8/28/2014			RunNo: 16587			
Client ID: MW-2	Batch ID: 8554	Analysis Date: 9/2/2014						SeqNo: 333619			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo[a]pyrene	ND	0.500						0		50	
Indeno (1,2,3-cd) pyrene	ND	0.500						0		50	
Dibenzo (a,h) anthracene	ND	0.500						0		50	
Benzo (g,h,i) perylene	ND	0.500						0		50	
Surr: 2,4,6-Tribromophenol	4.19		8.000		52.4	18	139		0		
Surr: 2-Fluorobiphenyl	2.97		4.000		74.4	23.3	118		0		
Surr: Nitrobenzene-d5	3.64		4.000		91.0	21.9	139		0		
Surr: Phenol-d6	0.783		8.000		9.79	10	103		0		S
Surr: p-Terphenyl	4.02		4.000		100	41.3	140		0		

NOTES:

S - Laboratory technical control limit for Phenol-d6 is below 10.

Sample ID: 1408261-005BMS	SampType: MS	Units: µg/L			Prep Date: 8/28/2014			RunNo: 16587			
Client ID: OW-2	Batch ID: 8554				Analysis Date: 9/2/2014			SeqNo: 333625			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	ND	2.00	4.000	0	27.7	10	78.2				
2-Chlorophenol	2.64	1.00	4.000	0	66.1	25	106				
1,3-Dichlorobenzene	2.94	1.00	4.000	0	73.4	25.5	103				
1,4-Dichlorobenzene	2.93	1.00	4.000	0	73.3	25.6	104				
1,2-Dichlorobenzene	3.02	1.00	4.000	0	75.5	26.1	105				
Benzyl alcohol	4.21	1.00	4.000	0	105	20	96.8				S
Bis(2-chloroethyl) ether	3.57	2.00	4.000	0	89.3	25	110				
2-Methylphenol (o-cresol)	2.49	1.00	4.000	0	62.2	25.1	95.8				
Hexachloroethane	3.04	1.00	4.000	0	75.9	25	106				
N-Nitrosodi-n-propylamine	3.68	1.00	4.000	0	91.9	25.5	116				
Nitrobenzene	2.74	2.00	4.000	0	68.6	30.5	105				
Isophorone	3.24	1.00	4.000	0	81.0	25	121				
4-Methylphenol (p-cresol)	1.29	1.00	2.000	0	64.5	25	106				

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits

D Dilution was required
J Analyte detected below quantitation limits
RL Reporting Limit

E Value above quantitation range
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT**Semi-Volatile Organic Compounds by EPA Method 8270**

Sample ID: 1408261-005BMS	SampType: MS	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16587		
Client ID: OW-2	Batch ID: 8554	Analysis Date: 9/2/2014						SeqNo: 333625			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Nitrophenol	2.87	2.00	4.000	0	71.7	25	123				
2,4-Dimethylphenol	3.97	1.00	4.000	0	99.3	25	123				
Bis(2-chloroethoxy)methane	3.81	1.00	4.000	0	95.2	25.4	116				
2,4-Dichlorophenol	3.75	2.00	4.000	0	93.8	34.3	110				
1,2,4-Trichlorobenzene	3.17	1.00	4.000	0	79.3	25	110				
Naphthalene	3.17	0.500	4.000	0	79.3	25	131				
4-Chloroaniline	ND	5.00	4.000	0	86.0	25	130				
Hexachlorobutadiene	2.80	1.00	4.000	0	70.0	25	105				
4-Chloro-3-methylphenol	5.09	5.00	4.000	0	127	36.3	120				S
2-Methylnaphthalene	3.58	0.500	4.000	0	89.6	25	119				
1-Methylnaphthalene	3.81	0.500	4.000	0	95.3	25.3	117				
Hexachlorocyclopentadiene	2.58	1.00	4.000	0	64.4	25	114				
2,4,6-Trichlorophenol	3.58	2.00	4.000	0	89.4	25	131				
2,4,5-Trichlorophenol	2.46	2.00	4.000	0	61.5	25	122				
2-Chloronaphthalene	3.30	1.00	4.000	0	82.6	27.3	115				
2-Nitroaniline	ND	5.00	4.000	0	93.3	27.9	114				
Acenaphthene	3.58	0.500	4.000	0	89.5	25	136				
Dimethylphthalate	3.07	1.00	4.000	0	76.8	31	128				
2,6-Dinitrotoluene	2.84	1.00	4.000	0	71.1	26.9	125				
Acenaphthylene	3.67	0.500	4.000	0	91.6	26.8	122				
2,4-Dinitrophenol	ND	2.00	4.000	0	48.5	25	148				
Dibenzofuran	4.44	1.00	4.000	0	111	27.8	116				
2,4-Dinitrotoluene	3.04	1.00	4.000	0	75.9	25	123				
4-Nitrophenol	ND	5.00	4.000	0	96.4	20	109				
Fluorene	4.04	0.500	4.000	0	101	25	131				
4-Chlorophenyl phenyl ether	3.57	1.00	4.000	0	89.3	28.9	119				
Diethylphthalate	3.53	1.00	4.000	0	88.2	36.6	136				
4,6-Dinitro-2-methylphenol	ND	5.00	4.000	0	59.2	25	136				
4-Bromophenyl phenyl ether	3.58	1.00	4.000	0	89.5	30.2	124				

Qualifiers: B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits

D Dilution was required
J Analyte detected below quantitation limits
RL Reporting Limit

E Value above quantitation range
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT**Semi-Volatile Organic Compounds by EPA Method 8270**

Sample ID: 1408261-005BMS	SampType: MS	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16587		
Client ID: OW-2	Batch ID: 8554					Analysis Date: 9/2/2014			SeqNo: 333625		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobenzene	3.28	1.00	4.000	0	82.1	34.6	114				
Pentachlorophenol	4.41	2.00	4.000	0	110	25	145				
Phenanthrene	3.75	0.500	4.000	0	93.8	26	139				
Anthracene	3.85	0.500	4.000	0	96.3	34.5	129				
Carbazole	ND	5.00	4.000	0	0	36.7	143				S
Di-n-butyl phthalate	3.87	1.00	4.000	0.2969	89.4	39.7	149				
Fluoranthene	4.06	0.500	4.000	0	101	39.3	141				
Pyrene	4.15	0.500	4.000	0	104	40.9	137				
Benzyl Butylphthalate	4.46	1.00	4.000	0	111	50.5	139				
Benz[a]anthracene	3.13	0.500	4.000	0	78.2	34.2	124				
Chrysene	3.80	0.500	4.000	0	95.1	44.6	116				
Bis(2-ethylhexyl) phthalate	4.36	1.00	4.000	0.4466	97.9	39.9	143				
Di-n-octyl phthalate	4.80	1.00	4.000	0	120	37.5	163				
Benzo (b) fluoranthene	3.51	0.500	4.000	0	87.7	40.7	116				
Benzo (k) fluoranthene	3.24	0.500	4.000	0	80.9	25.5	135				
Benzo[a]pyrene	3.86	0.500	4.000	0	96.5	25	120				
Indeno (1,2,3-cd) pyrene	3.43	0.500	4.000	0	85.7	25	121				
Dibenzo (a,h) anthracene	3.44	0.500	4.000	0	86.1	25	125				
Benzo (g,h,i) perylene	3.28	0.500	4.000	0	82.1	25	124				
Surr: 2,4,6-Tribromophenol	4.16		8.000		52.0	18	139				
Surr: 2-Fluorobiphenyl	3.33		4.000		83.4	23.3	118				
Surr: Nitrobenzene-d5	4.15		4.000		104	21.9	139				
Surr: Phenol-d6	0.900		8.000		11.2	10	103				
Surr: p-Terphenyl	4.60		4.000		115	41.3	140				

NOTES:

S - Outlying QC recoveries were associated with this sample. The method is in control as indicated by the LCS.

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT**Gasoline by NWTPH-Gx**

Sample ID: 1408264-001ADUP		SampType: DUP			Units: µg/L		Prep Date: 8/28/2014			RunNo: 16482		
Client ID: BATCH		Batch ID: R16482			Analysis Date: 8/28/2014					SeqNo: 331712		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Gasoline	ND	50.0						0		30	
Surr: Toluene-d8	50.3		50.00		101	65	135		0	0	
Surr: 4-Bromofluorobenzene	50.8		50.00		102	65	135		0	0	

Sample ID: LCS-R16482		SampType: LCS			Units: µg/L		Prep Date: 8/28/2014			RunNo: 16482		
Client ID: LCSW		Batch ID: R16482			Analysis Date: 8/28/2014			SeqNo: 331716				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Gasoline	575	50.0	500.0	0	115	65	135				
Surr: Toluene-d8	49.4		50.00		98.9	65	135				
Surr: 4-Bromofluorobenzene	48.3		50.00		96.6	65	135				

Sample ID: MB-R16482		SampType: MBLK			Units: µg/L		Prep Date: 8/28/2014			RunNo: 16482		
Client ID: MBLKW		Batch ID: R16482			Analysis Date: 8/28/2014			SeqNo: 331717				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Gasoline	ND	50.0									
Surr: Toluene-d8	50.2		50.00		100	65	135				
Surr: 4-Bromofluorobenzene	48.2		50.00		96.4	65	135				

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-R16477	SampType: LCS	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16477		
Client ID: LCSW	Batch ID: R16477	Analysis Date: 8/28/2014						SeqNo: 331579			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	16.2	1.00	20.00	0	80.9	43	136				
Chloromethane	19.8	1.00	20.00	0	98.8	43.9	139				
Vinyl chloride	21.0	0.200	20.00	0	105	53.6	139				
Bromomethane	24.4	1.00	20.00	0	122	44.8	148				
Trichlorofluoromethane (CFC-11)	22.2	1.00	20.00	0	111	63.7	133				
Chloroethane	20.0	1.00	20.00	0	99.9	53	141				
1,1-Dichloroethene	21.6	1.00	20.00	0	108	65.6	136				
Methylene chloride	21.8	1.00	20.00	0	109	67.1	131				
trans-1,2-Dichloroethene	21.1	1.00	20.00	0	106	71.7	129				
Methyl tert-butyl ether (MTBE)	19.8	1.00	20.00	0	99.2	67.7	131				
1,1-Dichloroethane	21.6	1.00	20.00	0	108	67.9	134				
2,2-Dichloropropane	23.2	2.00	20.00	0	116	33.7	152				
cis-1,2-Dichloroethene	22.1	1.00	20.00	0	110	71.1	130				
Chloroform	20.8	1.00	20.00	0	104	76.7	124				
1,1,1-Trichloroethane (TCA)	21.5	1.00	20.00	0	108	71	131				
1,1-Dichloropropene	22.2	1.00	20.00	0	111	74.5	126				
Carbon tetrachloride	22.0	1.00	20.00	0	110	66.2	134				
1,2-Dichloroethane (EDC)	21.1	1.00	20.00	0	106	70	129				
Benzene	22.0	1.00	20.00	0	110	73.1	126				
Trichloroethene (TCE)	22.0	0.500	20.00	0	110	65.2	136				
1,2-Dichloropropane	21.1	1.00	20.00	0	105	70.5	130				
Bromodichloromethane	21.5	1.00	20.00	0	108	74.6	127				
Dibromomethane	20.8	1.00	20.00	0	104	75.5	126				
cis-1,3-Dichloropropene	21.4	1.00	20.00	0	107	62.6	137				
Toluene	21.2	1.00	20.00	0	106	61.3	145				
trans-1,3-Dichloropropene	20.5	1.00	20.00	0	103	58.5	142				
1,1,2-Trichloroethane	19.2	1.00	20.00	0	96.2	76	124				
1,3-Dichloropropane	21.1	1.00	20.00	0	106	73.5	127				
Tetrachloroethene (PCE)	21.9	1.00	20.00	0	109	47.5	147				

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-R16477	SampType: LCS	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16477		
Client ID: LCSW	Batch ID: R16477	Analysis Date: 8/28/2014						SeqNo: 331579			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	20.5	1.00	20.00	0	102	67.2	134				
1,2-Dibromoethane (EDB)	21.0	0.0600	20.00	0	105	73.6	125				
Chlorobenzene	23.0	1.00	20.00	0	115	73.9	126				
1,1,1,2-Tetrachloroethane	22.0	1.00	20.00	0	110	76.8	124				
Ethylbenzene	22.7	1.00	20.00	0	114	72	130				
m,p-Xylene	46.5	1.00	40.00	0	116	73	131				
o-Xylene	23.0	1.00	20.00	0	115	72.1	131				
Styrene	22.1	1.00	20.00	0	110	64.3	140				
Isopropylbenzene	23.0	1.00	20.00	0	115	73.9	128				
Bromoform	22.7	1.00	20.00	0	114	63.8	135				
1,1,2,2-Tetrachloroethane	20.2	1.00	20.00	0	101	62.9	132				
n-Propylbenzene	22.8	1.00	20.00	0	114	74.5	127				
Bromobenzene	21.4	1.00	20.00	0	107	71	131				
1,3,5-Trimethylbenzene	22.4	1.00	20.00	0	112	73.1	128				
2-Chlorotoluene	22.0	1.00	20.00	0	110	70.8	130				
4-Chlorotoluene	22.2	1.00	20.00	0	111	70.1	131				
tert-Butylbenzene	22.7	1.00	20.00	0	113	68.2	131				
1,2,3-Trichloropropane	20.5	1.00	20.00	0	102	67.7	131				
1,2,4-Trichlorobenzene	16.6	2.00	20.00	0	83.3	72.4	127				
sec-Butylbenzene	22.1	1.00	20.00	0	110	72	129				
4-Isopropyltoluene	22.7	1.00	20.00	0	113	69.2	130				
1,3-Dichlorobenzene	22.6	1.00	20.00	0	113	72.4	129				
1,4-Dichlorobenzene	22.4	1.00	20.00	0	112	70.6	128				
n-Butylbenzene	22.7	1.00	20.00	0	114	73.8	127				
1,2-Dichlorobenzene	21.3	1.00	20.00	0	107	74.2	129				
1,2-Dibromo-3-chloropropane	16.6	1.00	20.00	0	82.9	63.1	136				
1,2,4-Trimethylbenzene	22.1	1.00	20.00	0	110	73.4	127				
Hexachlorobutadiene	22.3	4.00	20.00	0	112	58.6	138				
Naphthalene	14.1	1.00	20.00	0	70.6	62	136				

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-R16477	SampType: LCS	Units: µg/L			Prep Date: 8/28/2014			RunNo: 16477			
Client ID: LCSW	Batch ID: R16477				Analysis Date: 8/28/2014			SeqNo: 331579			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichlorobenzene	13.0	4.00	20.00	0	65.3	66.4	132				S
Surr: Dibromofluoromethane	48.8		50.00		97.5	61.7	130				
Surr: Toluene-d8	48.3		50.00		96.6	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	45.5		50.00		91.1	68.2	127				

NOTES:

S - Outlying QC recoveries were observed (1,2,3-Trichlorobenzene; low bias). The following samples will be qualified with an *.

Sample ID: MB-R16477	SampType: MBLK	Units: µg/L			Prep Date: 8/28/2014			RunNo: 16477			
Client ID: MBLKW	Batch ID: R16477				Analysis Date: 8/28/2014			SeqNo: 331580			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.00									
Chloromethane	ND	1.00									
Vinyl chloride	ND	0.200									
Bromomethane	ND	1.00									
Trichlorofluoromethane (CFC-11)	ND	1.00									
Chloroethane	ND	1.00									
1,1-Dichloroethene	ND	1.00									
Methylene chloride	ND	1.00									
trans-1,2-Dichloroethene	ND	1.00									
Methyl tert-butyl ether (MTBE)	ND	1.00									
1,1-Dichloroethane	ND	1.00									
2,2-Dichloropropane	ND	2.00									
cis-1,2-Dichloroethene	ND	1.00									
Chloroform	ND	1.00									
1,1,1-Trichloroethane (TCA)	ND	1.00									
1,1-Dichloropropene	ND	1.00									
Carbon tetrachloride	ND	1.00									
1,2-Dichloroethane (EDC)	ND	1.00									

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-R16477	SampType: MBLK	Units: µg/L			Prep Date: 8/28/2014			RunNo: 16477			
Client ID: MBLKW	Batch ID: R16477	Analysis Date: 8/28/2014						SeqNo: 331580			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00									
Trichloroethene (TCE)	ND	0.500									
1,2-Dichloropropane	ND	1.00									
Bromodichloromethane	ND	1.00									
Dibromomethane	ND	1.00									
cis-1,3-Dichloropropene	ND	1.00									
Toluene	ND	1.00									
trans-1,3-Dichloropropene	ND	1.00									
1,1,2-Trichloroethane	ND	1.00									
1,3-Dichloropropane	ND	1.00									
Tetrachloroethene (PCE)	ND	1.00									
Dibromochloromethane	ND	1.00									
1,2-Dibromoethane (EDB)	ND	0.0600									
Chlorobenzene	ND	1.00									
1,1,1,2-Tetrachloroethane	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Styrene	ND	1.00									
Isopropylbenzene	ND	1.00									
Bromoform	ND	1.00									
1,1,2,2-Tetrachloroethane	ND	1.00									
n-Propylbenzene	ND	1.00									
Bromobenzene	ND	1.00									
1,3,5-Trimethylbenzene	ND	1.00									
2-Chlorotoluene	ND	1.00									
4-Chlorotoluene	ND	1.00									
tert-Butylbenzene	ND	1.00									
1,2,3-Trichloropropane	ND	1.00									

Qualifiers: B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits

D Dilution was required
J Analyte detected below quantitation limits
RL Reporting Limit

E Value above quantitation range
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-R16477	SampType: MBLK	Units: µg/L			Prep Date: 8/28/2014			RunNo: 16477			
Client ID: MBLKW	Batch ID: R16477				Analysis Date: 8/28/2014			SeqNo: 331580			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	2.00									
sec-Butylbenzene	ND	1.00									
4-Isopropyltoluene	ND	1.00									
1,3-Dichlorobenzene	ND	1.00									
1,4-Dichlorobenzene	ND	1.00									
n-Butylbenzene	ND	1.00									
1,2-Dichlorobenzene	ND	1.00									
1,2-Dibromo-3-chloropropane	ND	1.00									
1,2,4-Trimethylbenzene	ND	1.00									
Hexachlorobutadiene	ND	4.00									
Naphthalene	ND	1.00									
1,2,3-Trichlorobenzene	ND	4.00									*
Surr: Dibromofluoromethane	47.8		50.00		95.6	61.7	130				
Surr: Toluene-d8	48.4		50.00		96.7	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	47.2		50.00		94.4	68.2	127				

NOTES:

* - Flagged value is not within established control limits.

Sample ID: 1408258-005AMS	SampType: MS	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16477		
Client ID: BATCH	Batch ID: R16477	Analysis Date: 8/28/2014							SeqNo: 331659		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	11.1	1.00	20.00	0	55.4	33.3	122				
Chloromethane	18.8	1.00	20.00	0.2000	93.1	48.2	145				
Vinyl chloride	20.1	0.200	20.00	0	100	58.1	158				
Bromomethane	23.7	1.00	20.00	0.4100	116	31.5	135				
Trichlorofluoromethane (CFC-11)	23.3	1.00	20.00	0	116	54.7	138				
Chloroethane	22.0	1.00	20.00	0	110	49.9	143				
1,1-Dichloroethene	22.0	1.00	20.00	0	110	63	141				

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1408258-005AMS	SampType: MS	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16477		
Client ID: BATCH	Batch ID: R16477	Analysis Date: 8/28/2014							SeqNo: 331659		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methylene chloride	22.9	1.00	20.00	0	114	61.6	135				
trans-1,2-Dichloroethene	23.3	1.00	20.00	0	117	63.5	138				
Methyl tert-butyl ether (MTBE)	22.2	1.00	20.00	0	111	60.9	132				
1,1-Dichloroethane	23.8	1.00	20.00	0	119	67.8	136				
2,2-Dichloropropane	22.1	2.00	20.00	0	110	31.5	121				
cis-1,2-Dichloroethene	23.7	1.00	20.00	0	118	67.1	123				
Chloroform	22.9	1.00	20.00	0	114	66.7	136				
1,1,1-Trichloroethane (TCA)	23.2	1.00	20.00	0.3700	114	64.2	146				
1,1-Dichloropropene	24.4	1.00	20.00	0	122	73.8	136				
Carbon tetrachloride	23.4	1.00	20.00	0	117	62.7	146				
1,2-Dichloroethane (EDC)	22.9	1.00	20.00	0	114	63.4	137				
Benzene	24.2	1.00	20.00	0	121	65.4	138				
Trichloroethene (TCE)	23.6	0.500	20.00	0	118	60.4	134				
1,2-Dichloropropane	23.8	1.00	20.00	0	119	62.6	138				
Bromodichloromethane	23.6	1.00	20.00	0	118	59.4	139				
Dibromomethane	23.8	1.00	20.00	0	119	63.6	139				
cis-1,3-Dichloropropene	22.9	1.00	20.00	0	115	63.8	132				
Toluene	23.4	1.00	20.00	0	117	64	139				
trans-1,3-Dichloropropene	21.6	1.00	20.00	0	108	57.7	125				
1,1,2-Trichloroethane	22.6	1.00	20.00	0	113	59.4	127				
1,3-Dichloropropane	22.7	1.00	20.00	0	114	64.3	135				
Tetrachloroethene (PCE)	23.8	1.00	20.00	0	119	50.3	133				
Dibromochloromethane	23.6	1.00	20.00	0	118	61.6	139				
1,2-Dibromoethane (EDB)	22.7	0.0600	20.00	0	113	63.2	134				
Chlorobenzene	24.5	1.00	20.00	0	123	65.8	134				
1,1,1,2-Tetrachloroethane	24.4	1.00	20.00	0.1400	121	65.4	135				
Ethylbenzene	24.5	1.00	20.00	0	123	64.5	136				
m,p-Xylene	50.7	1.00	40.00	0	127	63.3	135				
o-Xylene	23.3	1.00	20.00	0	117	65.4	134				

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1408258-005AMS	SampType: MS	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16477		
Client ID: BATCH	Batch ID: R16477	Analysis Date: 8/28/2014							SeqNo: 331659		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Styrene	23.3	1.00	20.00	0.3000	115	59.1	134				
Isopropylbenzene	24.9	1.00	20.00	0	125	56	147				
Bromoform	23.2	1.00	20.00	0	116	57.7	139				
1,1,2,2-Tetrachloroethane	23.4	1.00	20.00	0	117	59.8	146				
n-Propylbenzene	24.4	1.00	20.00	0	122	57.6	142				
Bromobenzene	22.2	1.00	20.00	0	111	63.6	130				
1,3,5-Trimethylbenzene	23.8	1.00	20.00	0.3000	118	59.9	136				
2-Chlorotoluene	24.0	1.00	20.00	0	120	61.7	134				
4-Chlorotoluene	24.0	1.00	20.00	0	120	58.4	134				
tert-Butylbenzene	23.6	1.00	20.00	0	118	66.8	141				
1,2,3-Trichloropropane	23.5	1.00	20.00	0	118	62.4	129				
1,2,4-Trichlorobenzene	19.2	2.00	20.00	0.8600	91.8	50.9	133				
sec-Butylbenzene	23.6	1.00	20.00	0.2000	117	56	146				
4-Isopropyltoluene	23.1	1.00	20.00	0.1300	115	56.4	136				
1,3-Dichlorobenzene	22.6	1.00	20.00	0.2400	112	58.2	128				
1,4-Dichlorobenzene	23.0	1.00	20.00	0.1600	114	60.1	123				
n-Butylbenzene	22.6	1.00	20.00	0.2700	112	54.6	135				
1,2-Dichlorobenzene	22.5	1.00	20.00	0.1500	112	65.4	133				
1,2-Dibromo-3-chloropropane	20.7	1.00	20.00	0	104	51.8	142				
1,2,4-Trimethylbenzene	23.4	1.00	20.00	0.1500	116	63.7	132				
Hexachlorobutadiene	20.8	4.00	20.00	0.3900	102	58.1	130				
Naphthalene	17.8	1.00	20.00	3.000	74.0	54.5	132				
1,2,3-Trichlorobenzene	16.4	4.00	20.00	3.370	65.4	57	131				*
Surr: Dibromofluoromethane	49.7		50.00		99.4	61.7	130				
Surr: Toluene-d8	50.0		50.00		100	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	48.9		50.00		97.8	68.2	127				

NOTES:

* - Flagged value is not within established control limits.

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: 1408264-001ADUP	SampType: DUP	Units: µg/L			Prep Date: 8/28/2014			RunNo: 16477			
Client ID: BATCH	Batch ID: R16477	Analysis Date: 8/28/2014						SeqNo: 331673			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.00						0		30	
Chloromethane	ND	1.00						0		30	
Vinyl chloride	ND	0.200						0		30	
Bromomethane	ND	1.00						0		30	
Trichlorofluoromethane (CFC-11)	ND	1.00						0		30	
Chloroethane	ND	1.00						0		30	
1,1-Dichloroethene	ND	1.00						0		30	
Methylene chloride	ND	1.00						0		30	
trans-1,2-Dichloroethene	ND	1.00						0		30	
Methyl tert-butyl ether (MTBE)	ND	1.00						0		30	
1,1-Dichloroethane	ND	1.00						0		30	
2,2-Dichloropropane	ND	2.00						0		30	
cis-1,2-Dichloroethene	ND	1.00						0		30	
Chloroform	ND	1.00						0		30	
1,1,1-Trichloroethane (TCA)	ND	1.00						0		30	
1,1-Dichloropropene	ND	1.00						0		30	
Carbon tetrachloride	ND	1.00						0		30	
1,2-Dichloroethane (EDC)	ND	1.00						0		30	
Benzene	ND	1.00						0		30	
Trichloroethene (TCE)	ND	0.500						0		30	
1,2-Dichloropropane	ND	1.00						0		30	
Bromodichloromethane	ND	1.00						0		30	
Dibromomethane	ND	1.00						0		30	
cis-1,3-Dichloropropene	ND	1.00						0		30	
Toluene	ND	1.00						0		30	
trans-1,3-Dichloropropene	ND	1.00						0		30	
1,1,2-Trichloroethane	ND	1.00						0		30	
1,3-Dichloropropane	ND	1.00						0		30	
Tetrachloroethene (PCE)	ND	1.00						0		30	

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: 1408264-001ADUP		SampType: DUP		Units: µg/L		Prep Date: 8/28/2014			RunNo: 16477		
Client ID: BATCH		Batch ID: R16477					Analysis Date: 8/28/2014			SeqNo: 331673	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	ND	1.00						0		30	
1,2-Dibromoethane (EDB)	ND	0.0600						0		30	
Chlorobenzene	ND	1.00						0		30	
1,1,1,2-Tetrachloroethane	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Styrene	ND	1.00						0		30	
Isopropylbenzene	ND	1.00						0		30	
Bromoform	ND	1.00						0		30	
1,1,2,2-Tetrachloroethane	ND	1.00						0		30	
n-Propylbenzene	ND	1.00						0		30	
Bromobenzene	ND	1.00						0		30	
1,3,5-Trimethylbenzene	ND	1.00						0		30	
2-Chlorotoluene	ND	1.00						0		30	
4-Chlorotoluene	ND	1.00						0		30	
tert-Butylbenzene	ND	1.00						0		30	
1,2,3-Trichloropropane	ND	1.00						0		30	
1,2,4-Trichlorobenzene	ND	2.00						0		30	
sec-Butylbenzene	ND	1.00						0		30	
4-Isopropyltoluene	ND	1.00						0		30	
1,3-Dichlorobenzene	ND	1.00						0		30	
1,4-Dichlorobenzene	ND	1.00						0		30	
n-Butylbenzene	ND	1.00						0		30	
1,2-Dichlorobenzene	ND	1.00						0		30	
1,2-Dibromo-3-chloropropane	ND	1.00						0		30	
1,2,4-Trimethylbenzene	ND	1.00						0		30	
Hexachlorobutadiene	ND	4.00						0		30	
Naphthalene	ND	1.00						0		30	

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/5/2014

Work Order: 1408261
CLIENT: Migizi Group, Inc.
Project: Meeker Square

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: 1408264-001ADUP	SampType: DUP	Units: µg/L				Prep Date: 8/28/2014			RunNo: 16477		
Client ID: BATCH	Batch ID: R16477					Analysis Date: 8/28/2014			SeqNo: 331673		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichlorobenzene	ND	4.00						0		30	*
Surr: Dibromofluoromethane	48.9		50.00		97.9	61.7	130		0		
Surr: Toluene-d8	48.3		50.00		96.6	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	49.8		50.00		99.6	68.2	127		0		

NOTES:

* - Flagged value is not within established control limits.

Qualifiers:	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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Sample Log-In Check List

Client Name: **MGI**
 Logged by: **Erica Silva**

Work Order Number: **1408261**
 Date Received: **8/28/2014 8:10:00 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 ☐
 4. Shipping container/cooler in good condition? Yes ☒ No ☐
 5. Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Required ☒
 6. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
 7. Were all coolers received at a temperature of $>0^{\circ}\text{C}$ 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 the 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:

For samples MW-1 and MW-3 each, a single 1L amber preserved with HCl was received for Diesel/Heavy Oil Range Organics analysis and Semi-Volatile Organics analysis.

Item Information

Item #	Temp °C	Condition
Cooler 1	6.4	Good
Cooler 2	9.5	Good
Sample 1	5.4	Good
Sample 2	7.9	Good



Fremont

Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 5/28/14

Laboratory Project No (internal): 1408261

Page: 1

of: 1

Client: MIGREI GROUP INC.

Project Name: NEEKER SQUARE

Address: 17921 BOTTLENECK RD HWY STE 102

Location: 1301 W. NEEKER

City, State, Zip: BOTHELL WA

Tel: 425 398-2300

Collected by: V.D.S + P. REIER

Reports To (PM): J. SCURIA

Fax: 425 398-2333

Email: JSCURIA@MIGREI.GROUP.COM

Project No: P278-14

* Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, D = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GA/BTEX	BTX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Range Oil range Organics (DO)	SEM VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (6020 / 200.8)	Total (D)	Anions (IC)**	EDB (8011)	Comments/Depth
1 MW-1	5/27/14		W	X			X	X	X								
2 MW-2				X			X	X	X								
3 MW-3				X			X	X	X								
4 OW-1				X			X	X				X					
5 OW-2				X			X	X				X					
6 OW-3				X			X	X				X					
7 TRIP				X													
8																	
9																	
10																	

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants: TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite Special Remarks:

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Relinquished [Signature] Date/Time 5/28/14 0700 Received Kerna Yulu Date/Time 5/28/14 8:10 AM

Relinquished [Signature] Date/Time 5/28/14 0700 Received Kerna Yulu Date/Time 5/28/14 8:10 AM

TAT -> SameDay^ NextDay^ 2 Day 3 Day STD

*Please coordinate with the lab in advance

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 11, 2015

Eric Koltes, Project Manager
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

RE: 65112.0, F&BI 511066

Dear Mr. Koltes:

Included are the results from the testing of material submitted on November 6, 2015 from the 65112.0, F&BI 511066 project. There are 31 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, Monica Mogg
EPI1111R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 6, 2015 by Friedman & Bruya, Inc. from the Environmental Partners 65112.0, F&BI 511066 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Environmental Partners</u>
511066 -01	B-14:5
511066 -02	B-14:10
511066 -03	B-14
511066 -04	B-21:5
511066 -05	B-21:10
511066 -06	B-21
511066 -07	B-22:5
511066 -08	B-22:10
511066 -09	B-22
511066 -10	B-23:5
511066 -11	B-23:10
511066 -12	B-23
511066 -13	B-7:5
511066 -14	B-7:12
511066 -15	B-7
511066 -16	B-9:5
511066 -17	B-9:10
511066 -18	B-9
511066 -19	B-19:5
511066 -20	B-19:10
511066 -21	B-19
511066 -22	B-20:5
511066 -23	B-20:10
511066 -24	B-20
511066 -25	B-3:5
511066 -26	B-3:8
511066 -27	B-3
511066 -28	B-4:6
511066 -29	B-4:10
511066 -30	B-4
511066 -31	B-2:5
511066 -32	B-2:10
511066 -33	B-2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE (Continued)

The 8260C hexachlorobutadiene matrix spike sample exceeded the acceptance criteria. The laboratory control sample met the acceptance criteria, therefore the results were likely due to matrix effect.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/11/15
Date Received: 11/06/15
Project: 65112.0, F&BI 511066
Date Extracted: 11/06/15
Date Analyzed: 11/06/15

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING METHODS 8021B AND NWTPH-Gx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
B-7:12 511066-14	<0.02	<0.02	<0.02	<0.06	<2	92
B-9:5 511066-16	<0.02	<0.02	<0.02	<0.06	<2	93
Method Blank 05-2257 MB	<0.02	<0.02	<0.02	<0.06	<2	95

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/11/15
Date Received: 11/06/15
Project: 65112.0, F&BI 511066
Date Extracted: 11/06/15
Date Analyzed: 11/06/15

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING METHODS 8021B AND NWTPH-Gx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 52-124)
B-7 511066-15	<1	<1	<1	<3	<100	93
B-9 511066-18	<1	<1	<1	<3	<100	95
Method Blank 05-2221 MB	<1	<1	<1	<3	<100	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/11/15

Date Received: 11/06/15

Project: 65112.0, F&BI 511066

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES, AND TPH AS GASOLINE
USING EPA METHOD 8021B AND NWTPH-Gx**

Laboratory Code: 511063-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery	Acceptance Criteria
			LCS	
Benzene	mg/kg (ppm)	0.5	97	66-121
Toluene	mg/kg (ppm)	0.5	96	72-128
Ethylbenzene	mg/kg (ppm)	0.5	98	69-132
Xylenes	mg/kg (ppm)	1.5	98	69-131
Gasoline	mg/kg (ppm)	20	100	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/11/15

Date Received: 11/06/15

Project: 65112.0, F&BI 511066

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES, AND TPH AS GASOLINE
USING EPA METHOD 8021B AND NWTPH-Gx**

Laboratory Code: 511064-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Acceptance Criteria
			Recovery LCS	
Benzene	ug/L (ppb)	50	97	65-118
Toluene	ug/L (ppb)	50	96	72-122
Ethylbenzene	ug/L (ppb)	50	96	73-126
Xylenes	ug/L (ppb)	150	95	74-118
Gasoline	ug/L (ppb)	1,000	98	69-134

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.

511066

SAMPLE CHAIN OF CUSTODY

ME 11-06-15

V3/CF3/VB2/4 B05
Page # 21 of 4Send Report To Eric Koller / M. MaysCompany Environmental Partners, IncAddress 1180 NW Maple St Suite 310City, State, ZIP Issaquah, WA 98027Phone # (425) 395-0010 Fax # (425) 395-0011SAMPLERS (signature) 

PROJECT NAME/NO.

65112.0

PO#

REMARKS

TURNAROUND TIME

☒ Standard (2 weeks) stay☐ RUSH

Rush charges authorized by

SAMPLE DISPOSAL

☐ Dispose after 30 days☐ Return samples☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED											Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS						
B-23:10	11	11/5/15	0725	soil	1												
B-23	12	11/5/15	0735	water	1	X											
B-7:5	13A-E	11/5/15	1755	soil	5												
B-7:12	14T	11/5/15	1800	soil	5												6x + BTEX
B-7	15A-L	11/5/15	1810	water	3		X	X									
B-9:5	16A-E		1830	soil	5		X	X									
B-9:10	17T		1835	soil	5												
B-9	18A-L		1840	water	3		X	X									
B-19:5	19A-E		1925	soil	5	X			X								Samples received at 4 °C
B-19:10	20T	✓	1930	soil	5												



Friedman & Bruya, Inc.
3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: 	Norman Mays	EP1	11/6/15	0759
Received by: 	Michael Edlich	FRBnc	↓	↓
Relinquished by:				
Received by:				

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 19, 2015

Eric Koltes, Project Manager
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

RE: 65112.0, F&BI 511183

Dear Mr. Koltes:

Included are the results from the testing of material submitted on November 13, 2015 from the 65112.0, F&BI 511183 project. There are 6 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, Monica Mogg
EPI1119R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 13, 2015 by Friedman & Bruya, Inc. from the Environmental Partners 65112.0, F&BI 511183 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Environmental Partners</u>
511183-01	B-10:5'
511183-02	B-10:10'
511183-03	B-10'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/19/15
Date Received: 11/13/15
Project: 65112.0, F&BI 511183
Date Extracted: 11/16/15
Date Analyzed: 11/16/15

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING METHODS 8021B AND NWTPH-Gx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
B-10:5' 511183-01	<0.02	<0.02	<0.02	<0.06	<2	100
Method Blank 05-2321 MB	<0.02	<0.02	<0.02	<0.06	<2	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/19/15
Date Received: 11/13/15
Project: 65112.0, F&BI 511183
Date Extracted: 11/16/15
Date Analyzed: 11/16/15

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING METHODS 8021B AND NWTPH-Gx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 52-124)
B-10' 511183-03	4.9	1.4	1.1	5.2	160	94
Method Blank 05-2320 MB	<1	<1	<1	<3	<100	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/19/15

Date Received: 11/13/15

Project: 65112.0, F&BI 511183

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES, AND TPH AS GASOLINE
USING EPA METHOD 8021B AND NWTPH-Gx**

Laboratory Code: 511197-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery	Acceptance Criteria
			LCS	
Benzene	mg/kg (ppm)	0.5	89	69-120
Toluene	mg/kg (ppm)	0.5	92	70-117
Ethylbenzene	mg/kg (ppm)	0.5	93	65-123
Xylenes	mg/kg (ppm)	1.5	89	66-120
Gasoline	mg/kg (ppm)	20	105	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/19/15

Date Received: 11/13/15

Project: 65112.0, F&BI 511183

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES, AND TPH AS GASOLINE
USING EPA METHOD 8021B AND NWTPH-Gx**

Laboratory Code: 511189-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	100	65-118
Toluene	ug/L (ppb)	50	98	72-122
Ethylbenzene	ug/L (ppb)	50	98	73-126
Xylenes	ug/L (ppb)	150	96	74-118
Gasoline	ug/L (ppb)	1,000	98	69-134

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.

511183

SAMPLE CHAIN OF CUSTODY

NE 11-13-15

CII/VI

Send Report To Eric Kolts / M. May
 Company EPI
 Address 1180 NW Maple St, Ste 310
 City, State, ZIP Issaquah, WA
 Phone # 425-395-0119 Fax # _____

SAMPLERS (signature) [Signature]

PROJECT NAME/NO.

65112-0

PO#

REMARKS

Page # 1 of 1

TURNAROUND TIME

☒ Standard (2-Weeks) 5 day☐ RUSH

Rush charges authorized by _____

SAMPLE DISPOSAL

☐ Dispose after 30 days☐ Return samples☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED										Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS					
B-10: 5'	01A9	11/12/15	1925	Soil	4		X	X								
B-10: 10'	02T		1930	Soil	4											
B-10	03A4		1940	Water	3		X	X								
B-10: 5'			2035	Soil	4		X	X								
B-10: 10'			2040	Soil	4											
B-10			2050	Water	3		X	X								

Samples received at 4 ^{PM}

Friedman & Bruya, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282
 Fax (206) 283-5044
 FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: <u>[Signature]</u>	Monica May	EPI	11/13/15	0700
Received by: <u>[Signature]</u>	Jason Kobas	Fedex	11/13/15	10:30 AM
Relinquished by: <u>[Signature]</u>				
Received by: <u>[Signature]</u>	Nhan Phan	FEBI	11/13/15	1120

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.

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fbi@isomedia.com
www.friedmanandbruya.com

November 7, 2018

Tena Seeds, Project Manager
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

RE: 65112.5, F&BI 811002

Dear Ms Seeds:

Included are the results from the testing of material submitted on November 1, 2018 from the 65112.5, F&BI 811002 project. There are 4 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, Eric Koltes
EPI1107R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 1, 2018 by Friedman & Bruya, Inc. from the Environmental Partners 65112.5, F&BI 811002 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID
811002 -01

Environmental Partners
OW-3

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/07/18
Date Received: 11/01/18
Project: 65112.5, F&BI 811002
Date Extracted: 11/02/18
Date Analyzed: 11/02/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING METHODS 8021B AND NWTPH-Gx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 52-124)
OW-3 811002-01	1.1	<1	4.0	4.3	1,300	119
Method Blank 08-2378 MB	<1	<1	<1	<3	<100	102

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/07/18

Date Received: 11/01/18

Project: 65112.5, F&BI 811002

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES, AND TPH AS GASOLINE
USING EPA METHOD 8021B AND NWTPH-Gx**

Laboratory Code: 811002-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	1.1	1.2	9
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	4.0	4.0	0
Xylenes	ug/L (ppb)	4.3	4.4	2
Gasoline	ug/L (ppb)	1,300	1,300	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Acceptance Criteria
			Recovery LCS	
Benzene	ug/L (ppb)	50	96	65-118
Toluene	ug/L (ppb)	50	94	72-122
Ethylbenzene	ug/L (ppb)	50	102	73-126
Xylenes	ug/L (ppb)	150	93	74-118
Gasoline	ug/L (ppb)	1,000	91	69-134

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.

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.

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www.friedmanandbruya.com

June 13, 2019

Tena Seeds, Project Manager
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

RE: 65112 - Meeker Gas Station, F&BI 906168

Dear Ms Seeds:

Included are the results from the testing of material submitted on June 10, 2019 from the 65112 - Meeker Gas Station, F&BI 906168 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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, Eric Koltes
EPI0613R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 10, 2019 by Friedman & Bruya, Inc. from the Environmental Partners 65112 - Meeker Gas Station, F&BI 906168 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Environmental Partners</u>
906168 -01	DPT-1:7.5
906168 -02	DPT-2:7
906168 -03	DPT-3:9
906168 -04	DPT-3:15

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/13/19

Date Received: 06/10/19

Project: 65112 - Meeker Gas Station, F&BI 906168

Date Extracted: 06/11/19

Date Analyzed: 06/11/19

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING METHODS 8021B AND NWTPH-Gx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
DPT-1:7.5 906168-01	<0.02	<0.02	<0.02	<0.06	<5	95
DPT-2:7 906168-02	<0.02	<0.02	<0.02	<0.06	<5	96
DPT-3:9 906168-03	<0.02	0.24	0.31	1.6	130	106
Method Blank 09-1292 MB2	<0.02	<0.02	<0.02	<0.06	<5	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/13/19

Date Received: 06/10/19

Project: 65112 - Meeker Gas Station, F&BI 906168

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES, AND TPH AS GASOLINE
USING EPA METHOD 8021B AND NWTPH-Gx**

Laboratory Code: 906151-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	76	66-121
Toluene	mg/kg (ppm)	0.5	85	72-128
Ethylbenzene	mg/kg (ppm)	0.5	81	69-132
Xylenes	mg/kg (ppm)	1.5	82	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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 analyte 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 due to sample matrix effects.

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.

6/10/1906:25

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

June 17, 2019

Tena Seeds, Project Manager
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

RE: 65112 - Meeker Gas Station, F&BI 906167

Dear Ms Seeds:

Included are the results from the testing of material submitted on June 10, 2019 from the 65112 - Meeker Gas Station, F&BI 906167 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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, Eric Koltes
EPI0617R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 10, 2019 by Friedman & Bruya, Inc. from the Environmental Partners 65112 - Meeker Gas Station, F&BI 906167 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Environmental Partners</u>
906167 -01	DPT-1:W
906167 -02	DPT-2:W
906167 -03	DPT-3:W
906167 -04	OW-3
906167 -05	OW-2
906167 -06	OW-1

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/17/19

Date Received: 06/10/19

Project: 65112 - Meeker Gas Station, F&BI 906167

Date Extracted: 06/13/19

Date Analyzed: 06/13/19

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING METHODS 8021B AND NWTPH-Gx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 52-124)
DPT-1:W 906167-01	<1	<1	<1	<3	<100	94
DPT-2:W 906167-02	<1	<1	<1	<3	<100	95
DPT-3:W 906167-03	<1	<1	<1	<3	140	95
OW-3 906167-04	1.4	3.1	1.6	3.3	940	108
OW-2 906167-05	<1	<1	<1	<3	<100	93
OW-1 906167-06	<1	<1	<1	<3	<100	94
Method Blank 09-1297 MB	<1	<1	<1	<3	<100	98

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/17/19

Date Received: 06/10/19

Project: 65112 - Meeker Gas Station, F&BI 906167

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES, AND TPH AS GASOLINE
USING EPA METHOD 8021B AND NWTPH-Gx**

Laboratory Code: 906226-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	95	65-118
Toluene	ug/L (ppb)	50	91	72-122
Ethylbenzene	ug/L (ppb)	50	88	73-126
Xylenes	ug/L (ppb)	150	87	74-118
Gasoline	ug/L (ppb)	1,000	93	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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 analyte 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 due to sample matrix effects.

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.

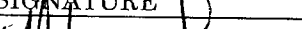

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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.

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: 	Mariem Espana	EPI	6/10/19	06:25
Received by: 	S. Obando	FBI	6/10/19	06:25
Relinquished by:				
Received by:				

Attachment B
Bore Logs

RESOURCE PROTECTION WELL REPORT

22-4-24M
START CARD NO. R28699

PROJECT NAME: Meeker Property
WELL IDENTIFICATION NO. AEB 463 (MW1)
DRILLING METHOD: HSA
DRILLER: Brian G. Gose
FIRM: Cascade Drilling, Inc.
SIGNATURE: Brian
CONSULTING FIRM: Giles Engineering
REPRESENTATIVE: Maria Agne

COUNTY: King
LOCATION: S 1/4 NW 1/4 Sec 24 Twn 22N R 4E
STREET ADDRESS OF WELL: 1310 W. Meeker St. Kent
WATER LEVEL ELEVATION: 8
GROUND SURFACE ELEVATION: N/A
INSTALLED: 4/13/98
DEVELOPED: Yes

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	WELL COVER	0 - 13 ft. brown/grey silty sands
	CONCRETE SURFACE SEAL DEPTH = 1/ft	
	PVC BLANK 2" x 3'	- ft.
	BACKFILL TYPE: bent. Chips	- ft.
	PVC SCREEN 2" x 10" SLOT SIZE: 1/16"	
	GRAVEL PACK 11 ft. MATERIAL: 2/12 Sand	
	WELL DEPTH 13. "	

RECEIVED
MAY 11 1998
NWRO-WR
DEPT OF ECOLOGY

SCALE: 1" = _____

PAGE _____ OF _____

RESOURCE PROTECTION WELL REPORT

ENTERED

START CARD NO. R28699

PROJECT NAME: Meeker Property
 WELL IDENTIFICATION NO. ACB 464 (MW3)
 DRILLING METHOD: HSA
 DRILLER: Brian G. Gose
 FIRM: Cascade Drilling, Inc.
 SIGNATURE: Brian
 CONSULTING FIRM: Giles Engineering
 REPRESENTATIVE: Maria Agne

COUNTY: King
 LOCATION: Sub NW 1/4 Sec 24 Twn 22N R 4E
 STREET ADDRESS OF WELL: 1310 W. Meeker St, Kent
 WATER LEVEL ELEVATION: 8
 GROUND SURFACE ELEVATION: N/A
 INSTALLED: 4/13/98
 DEVELOPED: Yes

8158

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	WELL COVER	0 - 13 ft.
	CONCRETE SURFACE SEAL DEPTH = 1/ft	brown/grey silty sands
	PVC BLANK 2 "x 3'	- ft.
	BACKFILL 1 ft. TYPE: bent. Chips	- ft.
	PVC SCREEN 2 "x 10' SLOT SIZE: 1/16"	
	GRAVEL PACK 11 ft. MATERIAL: 2/12 sand	
	WELL DEPTH 13. "	

RECEIVED
 MAY 11 1998
 NWRO-WR
 DEPT OF ECOLOGY

SCALE: 1" = _____

PAGE _____ OF _____

RESOURCE PROTECTION WELL REPORT

ENTERED

START CARD NO. R28699

PROJECT NAME: Meeker Property
 WELL IDENTIFICATION NO. AEB 465 (MW2)
 DRILLING METHOD: HSA
 DRILLER: Brian G. Goser
 FIRM: Cascade Drilling, Inc.
 SIGNATURE: Brian
 CONSULTING FIRM: Giles Engineering
 REPRESENTATIVE: Maria Agne

COUNTY: King
 LOCATION: Sub N 1/4 Sec 24 Twn 22N R 4E
 STREET ADDRESS OF WELL: 1310 W. Meeker St. Kent
 WATER LEVEL ELEVATION: 8
 GROUND SURFACE ELEVATION: N/A
 INSTALLED: 4/13/98
 DEVELOPED: Yes

8158

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	WELL COVER	0 - 13 ft. brown/grey silty sands
	CONCRETE SURFACE SEAL DEPTH = 1/ft	
	PVC BLANK <u>2" x 3'</u>	- ft.
	BACKFILL <u>1</u> ft. TYPE: <u>benf. Chps</u>	- ft.
	PVC SCREEN <u>2" x 10'</u> SLOT SIZE: <u>1/10</u>	
	GRAVEL PACK <u>11</u> ft. MATERIAL: <u>2/12 sand</u>	
	WELL DEPTH <u>13'</u>	

RECEIVED

MAY 11 1998
 NWRO-WR
 DEPT OF ECOLOGY

SCALE: 1" = _____

PAGE _____ OF _____

RESOURCE PROTECTION WELL REPORT

15511

ENTERED

START CARD NO. R28699

PROJECT NAME: Meeker Property
 WELL IDENTIFICATION NO. ACB 466 (MW4)
 DRILLING METHOD: HSA
 DRILLER: Brian G. Goser
 FIRM: Cascade Drilling, Inc.
 SIGNATURE: [Signature]
 CONSULTING FIRM: Giles Engineering
 REPRESENTATIVE: Maria Agne

COUNTY: King
 LOCATION: Suk NW 1/4 Sec 24 Twn 22N R 4E
 STREET ADDRESS OF WELL: 1310 W. Meeker St, Kent
 WATER LEVEL ELEVATION: 8
 GROUND SURFACE ELEVATION: N/A
 INSTALLED: 4/13/98
 DEVELOPED: YES

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	WELL COVER	0 - 13 ft. brown/grey silty sands
	CONCRETE SURFACE SEAL DEPTH = 1/ft	
	PVC BLANK <u>2" x 3'</u>	- ft.
	BACKFILL <u>1</u> ft. TYPE: <u>benf. chips</u>	- ft.
	PVC SCREEN <u>2" x 10'</u> SLOT SIZE: <u>1/16"</u>	
	GRAVEL PACK <u>11</u> ft. MATERIAL: <u>3/12 sand</u>	
	WELL DEPTH <u>13'</u>	

RECEIVED
 MAY 11 1998
 NWRO-WR
 DEPT OF ECOLOGY

SCALE: 1" = _____

PAGE _____ OF _____

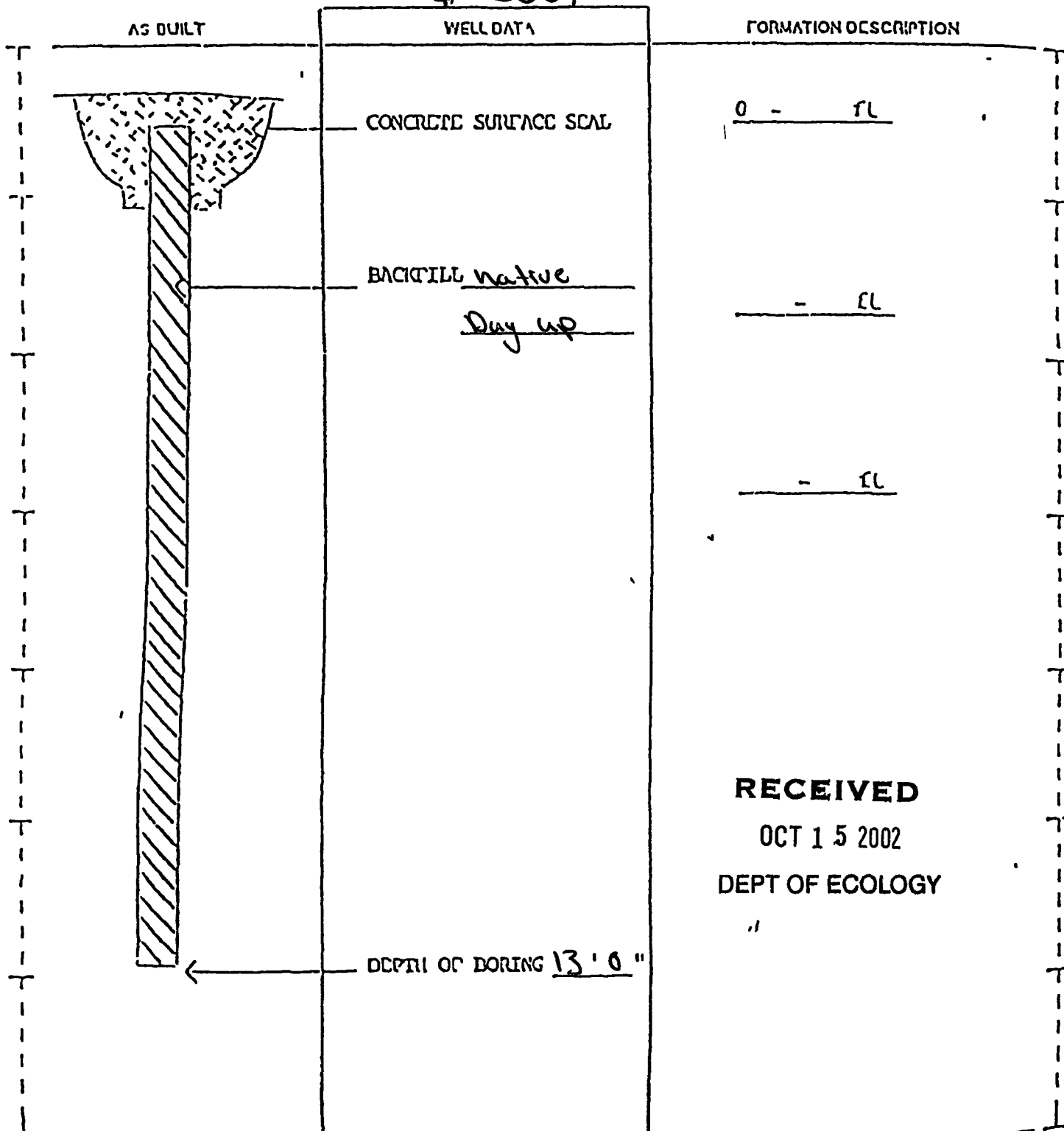
122634

RESOURCE PROTECTION WELL REPORT

START CAP NO A40212
22-4E-24E

PROJECT NAME Principal Capital Management COUNTY King
WELL IDENTIFICATION NO AEB 463 **(MW1)** LOCATION SW 1/4 NW 1/4 Sec 24 T22N R 4E
DRILLING METHOD Abandon STREET ADDRESS OF WELL 1310 W meeker, Kent WA
DRILLER Frank Scott WATER LEVEL ELEVATION N/A
FIRM Cascade Drilling, Inc. GROUND SURFACE ELEVATION N/A
SIGNATURE [Signature] AB INSTALLED 9/24/02
CONSULTING FIRM SLS Engineers DEVELOPED N/A
REPRESENTATIVE Brian Doan

2539



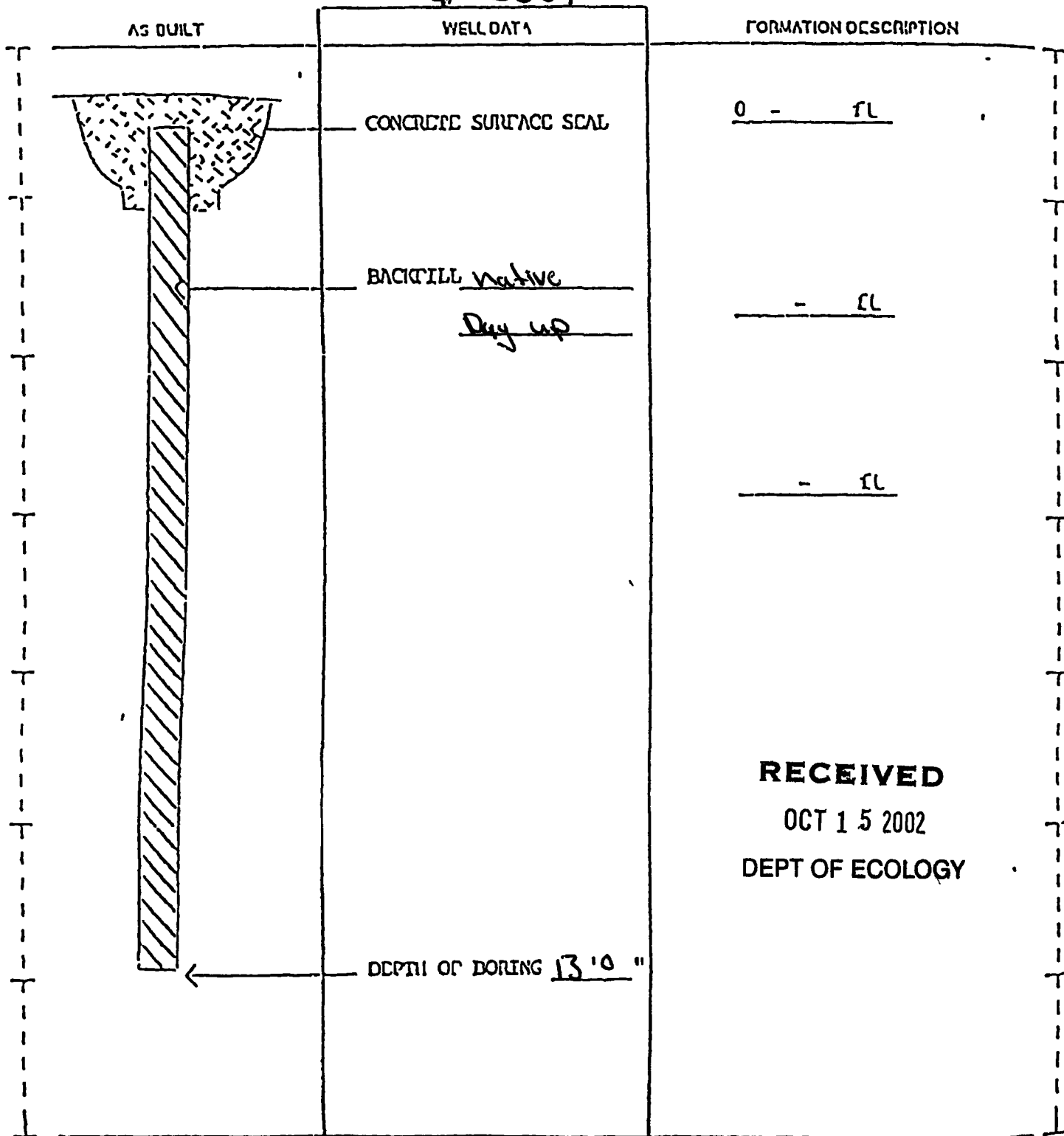
RECEIVED

OCT 15 2002

DEPT OF ECOLOGY

PROJECT NAME Principal Capital Management COUNTY King
 WELL IDENTIFICATION NO AEB465 (MW2) LOCATION SW 1/4 NW 1/4 Sec 24 T21N R 4E
 DRILLING METHOD Abandon STREET ADDRESS OF WELL _____
 DRILLER Frank Scott 1310 W meeker, Kent WA
 FIRM Cascade Drilling, Inc. WATER LEVEL ELEVATION N/A
 SIGNATURE [Signature] GROUND SURFACE ELEVATION N/A
 CONSULTING FIRM SLS Engineers INSTALLED 9/24/02
 REPRESENTATIVE Brian Doan DEVELOPED N/A

2539



RECEIVED
 OCT 15 2002
 DEPT OF ECOLOGY

106474

TACOMA PUMP & DRILLING 22-4E-24E

WELL ABANDONMENT FORM

State of Washington

RECEIVED

(MW4)

JAN 04 2002

Resource Protection Well

DEPT OF ECOLOGY

Well Tag ID No.: AEB 466

Notice of Intent: A 51544

Project Name: Ceccanti

Owner: King County

County: King

Street Address: 1310 Meeker St., Kent

Legal Description: SW ¼ of NW ¼ of Sec. 24 Twp. 22 Rge 4E

Well Log: Attached

Well Diameter: 2" Well Depth: 13'

Well Material: PVC

Well Screen: 0.010" X 10' from 3' - 13'

Well Perforations: NA

Sealing Material: Bentonite Chips

Amount of Sealing Material: 10 lbs.

Variance Required?: no

Driller: James Vignali

Lic. #: O987

Signature: *James Vignali* Date: 1/2/02

Consulting Firm: None

Representative: NA

Date of Completion: 11/14/01

Comments:

RESOURCE PROTECTION WELL REPORT

Notice of Intent No. R050476

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

(SP1)

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission Original Construction Notice
of Intent Number _____

1306661

RECEIVED

MAR 14 2003

Type of Well ("x" in circle)

☒ Resource Protection
☐ Geotech Soil Boring

Property Owner PRINCIPLE CAPITAL MANAGEMENT

Unique Ecology Well ID Tag No _____

Consulting Firm SCS

Driller or Trainee Name ALEX FLINK

Driller or Trainee Signature [Signature]

Driller or Trainee License No TZ616

If trainee, licensed driller's
Signature and License no. [Signature] 2657

DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

Site Address NW CORNER W. MEEKER & WASHINGTON

City KENT County: KING

Location SW 1/4- 1/4 NW 1/4 Sec 24 Twn 22N R 4E EW or WWM circle or one

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

Tax Parcel No _____

Cased or Uncased Diameter 2" Static Level 8'

Work/Decommission Start Date 1-14-02

Work/Decommission Completed Date 1-14-02

Construction/Design

Well Data

Formation Description

- STAINLESS STEEL
SCREEN WAS DRIVEN
FROM 8'-11' AND A
WATER SAMPLE WAS TAKEN

- ALL TOOLS WERE
RETRIEVED AND HOLE
WAS BACKFILLED WITH
BENTONITE

SANDY - SILT

SCREENED
INTERVAL
8'-11'

Scale 1"= 4'

Page 1 of 6

ECY 050-12 (Rev 2/01)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

RESOURCE PROTECTION WELL REPORT Notice of Intent No. R050476

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission *Original Construction Notice of Intent Number* _____

130662

(SP2)

Type of Well ("x" in circle)

☒ Resource Protection

☐ Geotech Soil Boring

Property Owner PRINCIPLE CAPITAL MANAGEMENT

Unique Ecology Well ID Tag No. _____

Consulting Firm SCS

Driller or Trainee Name ALEX FLINK

Driller or Trainee Signature [Signature]

Driller or Trainee License No. T2616

Site Address NW CORNER W. MEEKER & WASHINGTON

City KENT County: KING

Location SW 1/4- 1/4 NW 1/4 Sec 24 Twn 22N R 4E EW or WWM circle one

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 8'

Work/Decommission Start Date 1-14-02

Work/Decommission Completed Date 1-14-02

If trainee, licensed driller's Signature and License no.

[Signature] 2657

Construction/Design

Well Data

Formation Description

- STAINLESS STEEL SCREEN WAS DRIVEN FROM 8'-11' AND A WATER SAMPLE WAS TAKEN

- ALL TOOLS WERE RETRIEVED AND HOLE WAS BACKFILLED WITH BENTONITE

SCREENED INTERVAL 8'-11'

SANDY SILT

Scale 1" = 4'

Page 2 of 6

ECY 050-12 (Rev 2/01)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

RESOURCE PROTECTION WELL REPORT

Notice of Intent No. R050476

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission Original Construction Notice
of Intent Number _____

130663 (SP3)

Type of Well ("x" in circle)

☒ Resource Protection

☐ Geotech Soil Boring

Property Owner PRINCIPLE CAPITAL MANAGEMENT

Site Address NW CORNER W. MEEKER & WASHINGTON

Unique Ecology Well ID Tag No _____

City KENT County: KING

Consulting Firm SCS

Location SW 1/4- 1/4 NW 1/4 Sec 24 Twn 22N R 4E EW circle or one WWM

Driller or Trainee Name ALEX FLINK

Lat/Long (s, t, r) Lat Deg _____ Lat Min/Sec _____

still REQUIRED) Long Deg _____ Long Min/Sec _____

Driller or Trainee Signature [Signature]

Driller or Trainee License No T2616

Tax Parcel No _____

Cased or Uncased Diameter 2" Static Level 8'

Work/Decommission Start Date 1-14-02

Work/Decommission Completed Date 1-14-02

If trainee, licensed driller's
Signature and License no.

[Signature] 2657

Construction/Design

Well Data

Formation Description

- STAINLESS STEEL
SCREEN WAS DRIVEN
FROM 8'-11' AND A
WATER SAMPLE WAS TAKEN

- ALL TOOLS WERE
RETRIEVED AND HOLE
WAS BACKFILLED WITH
BENTONITE

SANDY-SILT

SCREENED
INTERVAL
8'-11'

Scale 1"= 4'

Page 3 of 6

ECY 050-12 (Rev 2/01)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

RESOURCE PROTECTION WELL REPORT

Notice of Intent No. R050476

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission Original Construction Notice
of Intent Number _____

130664

(SP4)

Type of Well ("x" in circle)

☒ Resource Protection

☐ Geotech Soil Boring

Property Owner PRINCIPLE CAPITAL MANAGEMENT

Site Address NW CORNER W. MEEKER & WASHINGTON

Unique Ecology Well ID Tag No. _____

City KENT County: KING

Consulting Firm SCS

Location SW 1/4- 1/4 NW 1/4 Sec 24 Twn 22N R 4E ☒ EWN circle or one WWM

Driller or Trainee Name ALEX FLINK

Lat/Long (s, t, r) Lat Deg _____ Lat Min/Sec _____

still REQUIRED) Long Deg _____ Long Min/Sec _____

Driller or Trainee Signature [Signature]

Driller or Trainee License No. T2616

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 8'

Work/Decommission Start Date 1-14-02

Work/Decommission Completed Date 1-14-02

If trainee, licensed driller's
Signature and License no. [Signature] 2657

Construction/Design

Well Data

Formation Description

- STAINLESS STEEL
SCREEN WAS DRIVEN
FROM 8'-11' AND A
WATER SAMPLE WAS TAKEN

- ALL TOOLS WERE
RETRIEVED AND HOLE
WAS BACKFILLED WITH
BENTONITE

SANDY-SILT

SCREENED
INTERVAL
8'-11'

Scale 1"= 4'

Page 4 of 6

ECY 050-12 (Rev 2/01)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Notice of Intent No. R050476

Construction/Decommission ("x" in circle)

- ☒ Construction
☐ Decommission Original Construction Notice
of Intent Number _____

130665

(SP5)

Type of Well ("x" in circle)

- ☒ Resource Protection
☐ Geotech Soil Boring

Property Owner PRINCIPLE CAPITAL MANAGEMENT

Site Address NW CORNER W. MEEKER & WASHINGTON

Unique Ecology Well ID Tag No. _____

City KENT County: KING

Consulting Firm SCS

Location SW 1/4- 1/4 NW 1/4 Sec. 24 Twn. 22N R. 4E ^{EW} circle or one WWM

Driller or Trainee Name ALEX FLINK

Lat/Long (s, t, r) Lat Deg _____ Lat Min/Sec _____
still REQUIRED)

Driller or Trainee Signature [Signature]

Long Deg _____ Long Min/Sec _____

Driller or Trainee License No. T2616

Tax Parcel No. _____

If trainee, licensed driller's Signature and License no [Signature] 2657

Cased or Uncased Diameter 2" Static Level 8'

Work/Decommission Start Date 1-14-02

Work/Decommission Completed Date 1-14-02

Construction/Design

Well Data

Formation Description

- STAINLESS STEEL
SCREEN WAS DRIVEN
FROM 8'-11' AND A
WATER SAMPLE WAS TAKEN

- ALL TOOLS WERE
RETRIEVED AND HOLE
WAS BACKFILLED WITH
BENTONITE

SCREENED
INTERVAL
8'-11'

SANDY-SILT

Scale 1"= 4'

Page 5 of 6

ECY 050-12 (Rev 2/01)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Notice of Intent No. R050476

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission Original Construction Notice
of Intent Number _____

130666

(SP6)

Type of Well ("x" in circle)

☒ Resource Protection

☐ Geotech Soil Boring

Property Owner PRINCIPLE CAPITAL MANAGEMENT

Site Address NW CORNER W. MEEKER & WASHINGTON

Unique Ecology Well ID Tag No _____

City KENT County: KING

Consulting Firm SCS

Location SW 1/4- 1/4 NW 1/4 Sec 24 Twn 22N R 4E ☒ circle or one WWM

Driller or Trainee Name ALEX FLINK

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Driller or Trainee Signature [Signature]

Long Deg _____ Long Min/Sec _____

Driller or Trainee License No T2616

Tax Parcel No _____

If trainee, licensed driller's
Signature and License no.

[Signature]
[Signature]
[Signature]

Cased or Uncased Diameter 2" Static Level 8'

Work/Decommission Start Date 1-14-02

Work/Decommission Completed Date 1-14-02

Construction/Design

Well Data

Formation Description

- STAINLESS STEEL
SCREEN WAS DRIVEN
FROM 8'-11' AND A
WATER SAMPLE WAS TAKEN

- ALL TOOLS WERE
RETRIEVED AND HOLE
WAS BACKFILLED WITH
BENTONITE

SANDY-SILT

SCREENED
INTERVAL
8'-11'

Scale 1"= 4'

Page 6 of 6

ECY 050-12 (Rev 2/01)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

RESOURCE PROTECTION WELL REPORT

Notice of Intent No. A53687

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

☐ Construction

☒ Decommission Original Construction Notice

of Intent Number R050476

130667

(SP1)

Type of Well ("x" in circle)

☒ Resource Protection

☐ Geotech Soil Boring

Property Owner PRINCIPLE CAPITAL MANAGEMENT

Site Address NW CORNER W. MEEKER & WASHINGTON

City KENT County: KING

Unique Ecology Well ID Tag No. _____

Location SW 1/4 - 1/4 NW 1/4 Sec 24 Twn 22N R 4E ☒ circle or one W.W.M.

Consulting Firm SCS

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Driller or Trainee Name ALEX FLINK

Long Deg _____ Long Min/Sec _____

Driller or Trainee Signature [Signature]

Tax Parcel No _____

Driller or Trainee License No. TZ616

Cased or Uncased Diameter 2" Static Level 8'

If trainee, licensed driller's Signature and License no. [Signature] 2657

Work/Decommission Start Date 1-14-02

Work/Decommission Completed Date 1-14-02

Construction/Design

Well Data

Formation Description

- STAINLESS STEEL
SCREEN WAS DRIVEN
FROM 8'-11' AND A
WATER SAMPLE WAS TAKEN

- ALL TOOLS WERE
RETRIEVED AND HOLE
WAS BACKFILLED WITH
BENTONITE

SANDY - SILT

SCREENED
INTERVAL
8'-11'

Scale 1"= 4'

Page 12 of 6

ECY 050-12 (Rev 2/01)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

RESOURCE PROTECTION WELL REPORT Notice of Intent No. A53687
(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

☐ Construction

☒ Decommission Original Construction Notice

of Intent Number R050476

130668

(SP2)

Type of Well ("x" in circle)

☒ Resource Protection

☐ Geotech Soil Boring

Property Owner PRINCIPLE CAPITAL MANAGEMENT

Site Address NW CORNER W. MEEKER & WASHINGTON

City KENT County: KING

Unique Ecology Well ID Tag No _____

Location SW 1/4 1/4 NW 1/4 Sec 24 Twn 22N R 4E ☒ circle or one WWM

Consulting Firm SCS

Lat/Long (s, t, r) Lat Deg _____ Lat Min/Sec _____

still REQUIRED) Long Deg _____ Long Min/Sec _____

Driller or Trainee Name ALEX FLINK

Driller or Trainee Signature [Signature]

Driller or Trainee License No TZ616

Tax Parcel No _____

Cased or Uncased Diameter 2" Static Level 8'

Work/Decommission Start Date 1-14-02

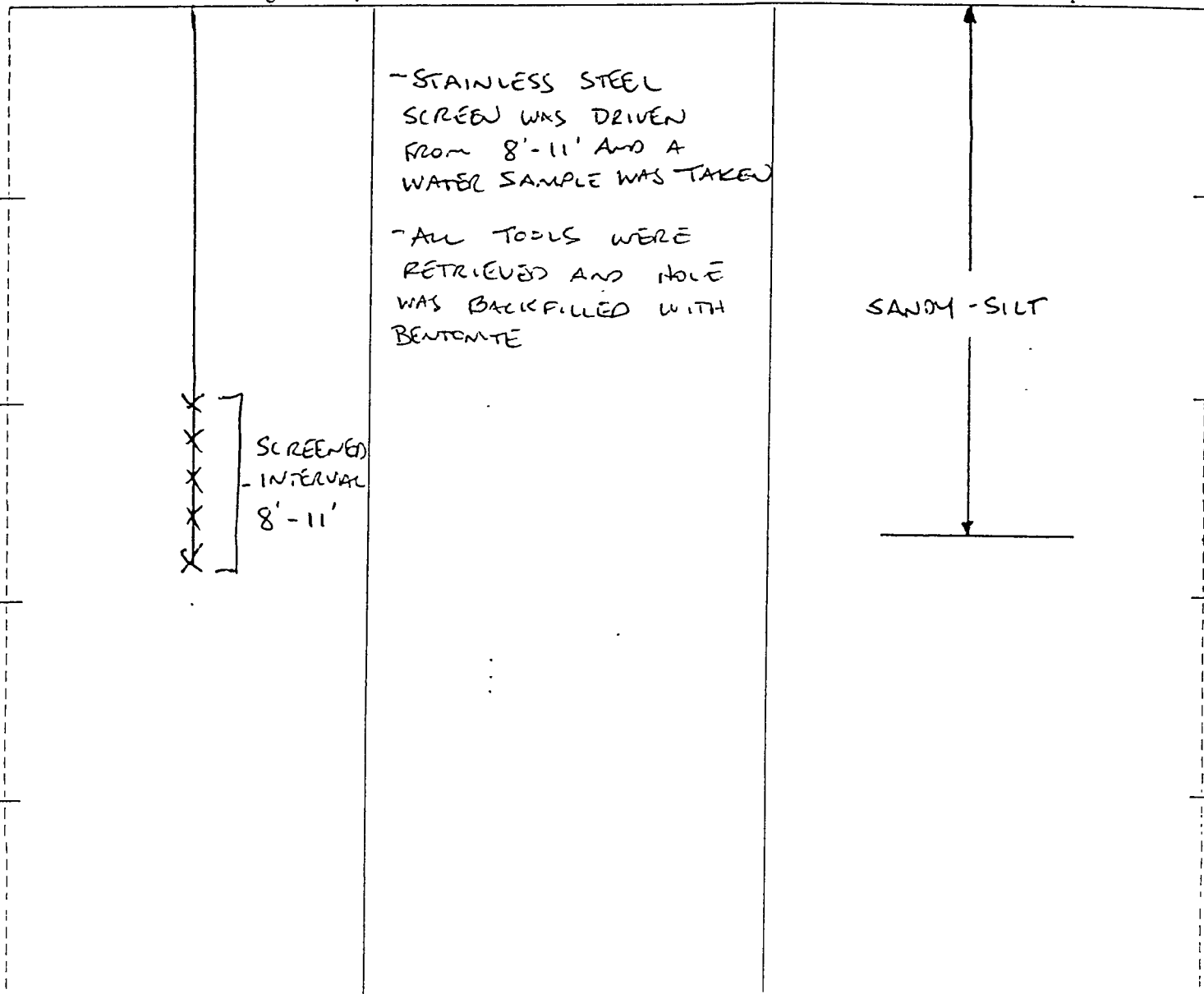
Work/Decommission Completed Date 1-14-02

If trainee, licensed driller's Signature and License no [Signature] 2657

Construction/Design

Well Data

Formation Description



Scale 1"= 4'

Page 2 of 6

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT Notice of Intent No. A53687

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

☐ Construction

☒ Decommission Original Construction Notice

of Intent Number ROSD476

130669 (SP3)

Type of Well ("x" in circle)

☒ Resource Protection

☐ Geotech Soil Boring

Property Owner PRINCIPLE CAPITAL MANAGEMENT

Site Address NW CORNER W. MEEKER & WASHINGTON

City KENT County: KING

Unique Ecology Well ID Tag No. _____

Location SW 1/4- 1/4 NW 1/4 Sec 24 Twn 22N R 4E circle one or WWM

Consulting Firm SCS

Lat/Long (s, t, r Lat Deg _____ Lat Min/Sec _____

still REQUIRED) Long Deg _____ Long Min/Sec _____

Driller or Trainee Name ALEX FLINK

Driller or Trainee Signature [Signature]

Driller or Trainee License No T2616

Tax Parcel No _____

Cased or Uncased Diameter 2" Static Level 8'

If trainee, licensed driller's Signature and License no [Signature] 2657

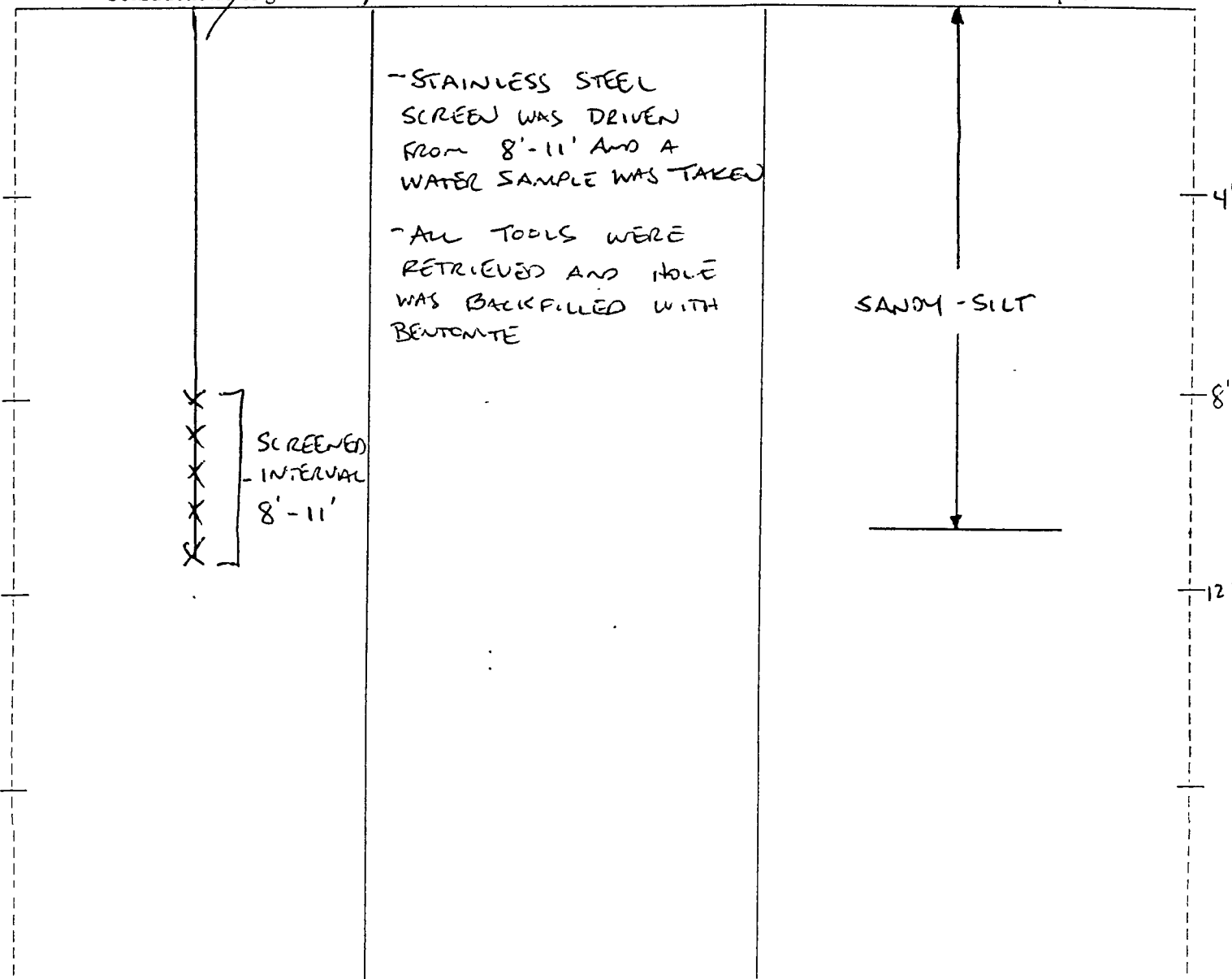
Work/Decommission Start Date 1-14-02

Work/Decommission Completed Date 1-14-02

Construction/Design

Well Data

Formation Description



Scale 1"= 4'

Page 3 of 6

ECY 050-12 (Rev 2/01)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

RESOURCE PROTECTION WELL REPORT

Notice of Intent No. A53687

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

☐ Construction☒ Decommission Original Construction Noticeof Intent Number R050476130670

(SP4)

Type of Well ("x" in circle)

☒ Resource Protection☐ Geotech Soil BoringProperty Owner PRINCIPLE CAPITAL MANAGEMENT

Unique Ecology Well ID Tag No. _____

Consulting Firm SCSDriller or Trainee Name ALEX FLINKDriller or Trainee Signature [Signature]Driller or Trainee License No. T2616If trainee, licensed driller's
Signature and License no[Signature]
2657Site Address NW CORNER W. MEEKER & WASHINGTONCity KENT County: KINGLocation SW 1/4- 1/4 NW 1/4 Sec 24 Twp 22N R 4E EW circle or one WWM

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 8'Work/Decommission Start Date 1-14-02Work/Decommission Completed Date 1-14-02

Construction/Design

Well Data

Formation Description

- STAINLESS STEEL
SCREEN WAS DRIVEN
FROM 8'-11' AND A
WATER SAMPLE WAS TAKEN

- ALL TOOLS WERE
RETRIEVED AND HOLE
WAS BACKFILLED WITH
BENTONITE

SANDY - SILT

SCREENED
INTERVAL
8'-11'

Scale 1" = 4'Page 4 of 6

ECY 050-12 (Rev 2/01)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

RESOURCE PROTECTION WELL REPORT

Notice of Intent No. A53687

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

☐ Construction☒ Decommission Original Construction Notice
of Intent Number R0SD476130471**(SP5)**

Type of Well ("x" in circle)

☒ Resource Protection☐ Geotech Soil BoringProperty Owner PRINCIPLE CAPITAL MANAGEMENTSite Address NW CORNER W. MEEKER & WASHINGTON

Unique Ecology Well ID Tag No _____

City KENTCounty: KINGConsulting Firm SCSLocation SW 1/4 - 1/4 NW 1/4 Sec 24 Twn 22N R 4E ☒ circle or one WWMDriller or Trainee Name ALEX FLINK

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Driller or Trainee Signature Alex Flink

Long Deg _____ Long Min/Sec _____

Driller or Trainee License No TZL16

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 8'Work/Decommission Start Date 1-14-02Work/Decommission Completed Date 1-14-02If trainee, licensed driller's
Signature and License noKATE VAN DUSEN
2657

Construction/Design

Well Data

Formation Description

- STAINLESS STEEL
SCREEN WAS DRIVEN
FROM 8'-11' AND A
WATER SAMPLE WAS TAKEN

- ALL TOOLS WERE
RETRIEVED AND HOLE
WAS BACKFILLED WITH
BENTONITE

SANDY-SILT

SCREENED
INTERVAL
8'-11'

Scale 1"= 4'Page 5 of 6

ECY 050-12 (Rev 2/01)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

RESOURCE PROTECTION WELL REPORT Notice of Intent No. A53687

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

☐ Construction

☒ Decommission Original Construction Notice

of Intent Number ROSD476

130672

(SP6)

Type of Well ("x" in circle)

☒ Resource Protection

☐ Geotech Soil Boring

Property Owner PRINCIPLE CAPITAL MANAGEMENT

Unique Ecology Well ID Tag No _____

Consulting Firm SCS

Driller or Trainee Name ALEX FLINK

Driller or Trainee Signature [Signature]

Driller or Trainee License No TZ616

If trainee, licensed driller's
Signature and License no. [Signature] 2657

Site Address NW CORNER W. MEEKER & WASHINGTON

City KENT County: KING

Location SW 1/4- 1/4 NW 1/4 Sec. 24 Twn 22N R 4E EW circle or one WWM

Lat/Long (s, t, r) Lat Deg _____ Lat Min/Sec _____

still REQUIRED) Long Deg _____ Long Min/Sec _____

Tax Parcel No _____

Cased or Uncased Diameter 2" Static Level 8'

Work/Decommission Start Date 1-14-02

Work/Decommission Completed Date 1-14-02

Construction/Design

Well Data

Formation Description


<p>SCREENED INTERVAL 8'-11'</p>	<p>- STAINLESS STEEL SCREEN WAS DRIVEN FROM 8'-11' AND A WATER SAMPLE WAS TAKEN</p> <p>- ALL TOOLS WERE RETRIEVED AND HOLE WAS BACKFILLED WITH BENTONITE</p>	<p>SANDY - SILT</p>
---	--	---------------------


Scale 1"= 4'



Page 6 of 6

ECY 050-12 (Rev 2/01)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

 ENVIRONMENTAL PARTNERS INC		BORING ID: B-7					
SITE ADDRESS 1301 W. Meeker St. Kent, WA		CLIENT: MJR					
DRILLING CONTRACTOR: ESN		PROJECT #: 65112					
DRILLING EQUIPMENT: Geoprobe		DATE: 11/5/15					
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:			DECOMMISSIONING MATERIAL: Bentonite & Asphalt		
LOGGED BY: J. Sherrod		TOTAL DEPTH: 15			BOREHOLE SIZE: 2"		
Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Sheen	Notes
0		ASPHALT AND FILL					
1		POORLY-GRADED SAND; brownish gray; damp					
2		Clay lense @ 2'	70	1			
3							
4							
5	SP				B-7:5		
6						NO	Recon water sample
7							
8			80	1.4			
9		POORLY-GRADED SAND WITH SILT; brownish gray, moist		2.3			
10		Silty Sand lense @ 9.5'		2.2			
11							
12	SP						
13		Wet @ 13'	95	20.1	B-7:12		
14				0.1			
15		End of Borehole					
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
NOTES: recon water sample							

 ENVIRONMENTAL PARTNERS INC		BORING ID: B-9					
SITE ADDRESS 1301 W. Meeker St. Kent, WA		CLIENT: MJR					
DRILLING CONTRACTOR: ESN		PROJECT #: 65112					
DRILLING EQUIPMENT: Geoprobe		DATE: 11/5/15					
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:			DECOMMISSIONING MATERIAL: Bentonite & Asphalt		
LOGGED BY: J. Sherrod		TOTAL DEPTH: 15			BOREHOLE SIZE: 2"		
Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Sheen	Notes
0		ASPHALT AND FILL					
1		SAND; brownish gray, damp					
2							
3	SP		70	0.8			
4							
5		Clay lense @ 5'		0.8	B-9:5		
6		SILTY SAND; reddish gray; moist					
7			80	0.9			
8							
9							
10	SM			0.7	B-9:10		
11		Reddish gray; wet @ 11'					
12			100	0.8			
13							
14							
15		End of Borehole		0.3			
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
NOTES: recon water sample							

 ENVIRONMENTAL PARTNERS INC		BORING ID: B-10					
SITE ADDRESS 1301 W. Meeker St. Kent, WA		CLIENT: MJR					
DRILLING CONTRACTOR: ESN		PROJECT #: 65112					
DRILLING EQUIPMENT: Bobcat mounted Powerprobe 9100-SK		DATE: 11/12/15					
DRILLING METHOD: DPT		GROUND SURFACE ELEV. FT AMSL:				DECOMMISSIONING MATERIAL: Bentonite & Asphalt	
LOGGED BY: M. Mogg		TOTAL DEPTH: 15				BOREHOLE SIZE: 2"	
Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Sheen	Notes
0		CONCRETE/ ASPHALT					
1							
2		SILTY SAND; reddish brown; damp	15		B-10: 5		
3							
4							
5							
6		SANDY SILT; reddish brown; damp					
7			70			NO	Recon Water Sample
8							
9		Wet @ 9' and grayish brown					
10					B-10: 10		
11							
12			90				
13							
14							
15		End of Borehole					
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
NOTES: recon water sample							



SITE ADDRESS

105 Washington Ave N, Kent, WA

CLIENT:

MJR Development

DRILLING CONTRACTOR:

Anderson Environmental Contracting

PROJECT #:

65112.5

DRILLING EQUIPMENT:

Geoprobe 7822DT

DATE:

6/8/2019

DRILLING METHOD:

Direct Push Technology

GROUND SURFACE ELEV. FT AMSL:

Not Measured

DECOMMISSIONING MATERIAL:

Hydrated Bentonite Chips

LOGGED BY:

B. Wing

TOTAL DEPTH:

15'

BOREHOLE SIZE:

4"

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Sheen	Notes
0		Asphalt Surface.					
1		POORLY-GRADED SAND WITH SILT AND GRAVEL; grayish brown; damp; medium dense; mostly fine sand with few silt and minor gravel, gravels small, rounded.					
2			70	0.0			
3	SP-SM			0.0			
4				0.0			
5				0.0			
6				0.0			
7				0.0			
8		POORLY-GRADED SAND WITH SILT; grayish brown; wet; medium dense; mostly fine sand with minor (25%) silt, trace gravel.	70	0.0	DPT-1:7.5		
9				0.0			
10				0.0			
11	SP-SM			0.0			
12				0.0			
13			100	0.0			
14				0.0			
15	ML	SANDY SILT; dark reddish gray; medium stiff; medium plasticity; mostly silt with some fine sand.		0.0	DPT-1:W		
16		End of Borehole					
17							
18							
19							
20							

NOTES: DTW = 7.81' at time of drilling (stabilized for ~30-45 min). 1" temp. well with 10' of screen from 5' bgs to 15' bgs.



SITE ADDRESS

105 Washington Ave N, Kent, WA

CLIENT:

MJR Development

DRILLING CONTRACTOR:

Anderson Environmental Contracting

PROJECT #:

65112.5

DRILLING EQUIPMENT:

Geoprobe 7822DT

DATE:

6/8/2019

DRILLING METHOD:

Direct Push Technology

GROUND SURFACE ELEV. FT AMSL:

Not Measured

DECOMMISSIONING MATERIAL:

Hydrated Bentonite Chips

LOGGED BY:

B. Wing

TOTAL DEPTH:

15'

BOREHOLE SIZE:

4"

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Sheen	Notes
0		Hand-cleared to 2.5'.					
1							
2							
3	GP	POORLY-GRADED GRAVEL; light gray; dry; loose.	40				
4	SP-SM	POORLY-GRADED SAND WITH GRAVEL; grayish brown; damp; medium dense; mostly fine sand with some gravel; gravels, small, rounded.					
5	SP-SM	POORLY-GRADED SAND WITH SILT; dark reddish brown; moist; medium dense; mostly fine sand with few silt.		0.0			
6							
7	SP-SM	POORLY-GRADED SAND WITH SILT; strong brown; wet; medium dense; mostly fine sand with some silt.	70	0.0	DPT-2:7		
8				0.0			
9							
10		POORLY-GRADED SAND WITH SILT; dark reddish brown; wet; medium dense; mostly fine sand with few silt.		0.0			
11	SP-SM			0.0			
12			90	0.0			
13				0.0			
14				0.0			
15		End of Borehole		0.0	DPT-2:W		
16							
17							
18							
19							
20							

NOTES: 1" temp. well screened 5'-15' bgs. Allowed to stabilize before sampling.



SITE ADDRESS 105 Washington Ave N, Kent, WA		CLIENT: MJR Development
DRILLING CONTRACTOR: Anderson Environmental Contracting		PROJECT #: 65112.5
DRILLING EQUIPMENT: Geoprobe 7822DT		DATE: 6/8/2019
DRILLING METHOD: Direct Push Technology	GROUND SURFACE ELEV. FT AMSL: Not Measured	DECOMMISSIONING MATERIAL: Hydrated Bentonite Chips
LOGGED BY: B. Wing	TOTAL DEPTH: 15'	BOREHOLE SIZE: 4"

Depth (feet)	USCS	Description USCS name; Color; Moisture; Density; Plasticity; Dilatency; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Sheen	Notes
0		Asphalt Surface.					
1	SP-SM	POORLY-GRADED SAND WITH SILT AND GRAVEL; grayish brown; dry; medium dense; mostly fine sand with few silt and minor gravel; gravels well-graded.	50	0.0			
2							
3							
4							
5	SP-SM	POORLY-GRADED SAND WITH SILT AND GRAVEL; grayish brown; moist; medium dense; mostly fine sand with few silt and few gravel.		0.1			
6							
7							
8			50	0.2			
9	SP-SM	POORLY-GRADED SAND WITH SILT; reddish gray; medium dense; mostly fine sand with minor silt.		5.4	DPT-3:9		
10				23.2			
11							
12	SP	POORLY-GRADED SAND; reddish gray; wet; loose.					
13	SM	SILTY SAND; reddish gray; wet; medium dense; some silt.	95	0.4			
14	SP	POORLY-GRADED SAND; reddish gray; wet; loose; mostly fine sand with few silt.					
15	ML	SANDY SILT; reddish gray; wet; medium stiff; medium plasticity.		1.0	DPT-3:15		
16		End of Borehole					
17							
18							
19							
20							

NOTES: DTW = 7.64' after initial installation of temp. well. DTW stabilized to 7.5' after ~30-45 min.

Attachment C
Wellhead Survey Data

**Wellhead Survey Measurements
Meeker Former Gas Station Site
105 Washington Avenue N, Kent, WA
June 8, 2019**

Benchmark Location: **Catch basin rim, 180 feet west-northwest of OW1**

Benchmark Survey Elevation (ft AMSL): **39.65**

Rod Measurement at Benchmark (feet): **7.5**

Reference Plane Elevation (ft AMSL): **47.15**

Setup #1 at catch basin rim for survey of OW1, OW2, and DPT-1 through DPT-3:

Location	Reference Elevation	Rod Measurement	Survey Elevation
OW1	47.15	6.07	41.08
OW2	47.15	4.50	42.65
DPT-1	47.15	5.21	41.94
DPT-2	47.15	4.84	42.31
DPT-3	47.15	5.32	41.83

Setup #2 at OW1 for survey of OW3:

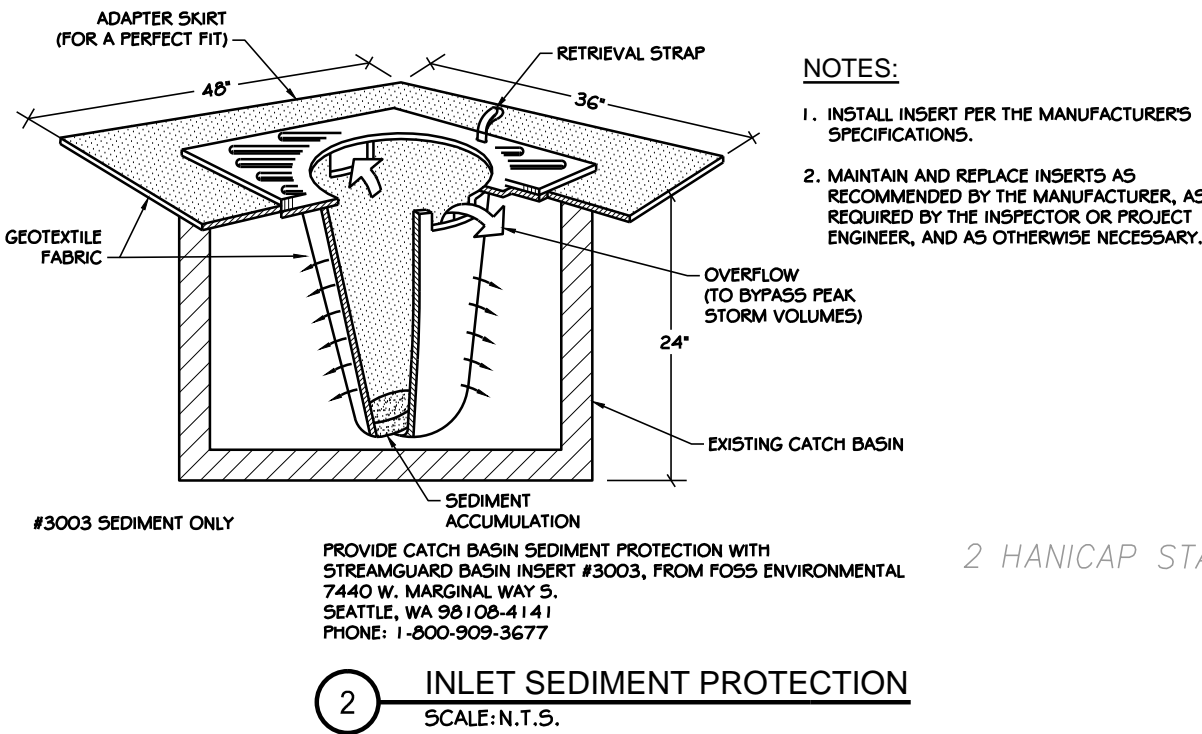
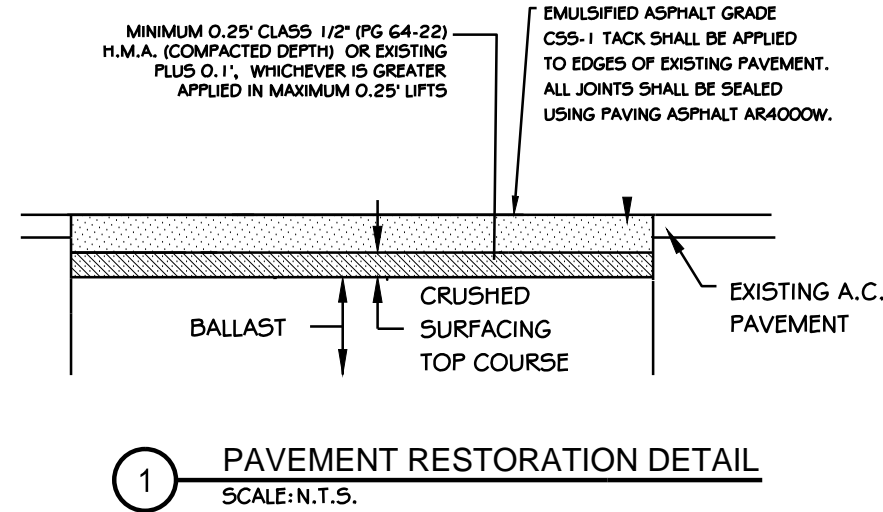
Location	Reference Elevation	Rod Measurement	Survey Elevation
OW1	46.96	5.88	41.08
OW2	46.96	4.40	42.56
OW3	46.96	4.88	42.08

Note:

Catch basin rim elevation relative to North American Vertical Datum of 1988;
obtained from "TESC & Grading Plan" for subject property, prepared by
KPFF of Lacey, WA, dated October 19, 2016.

FILE: 1\2016\41600415 - Kent Strip Mall Construction Permit\CADD\DWG\C2.0 - TESC & GRADING PLAN, DETAILS & NOTES
PLOTED BY: mwp/acc
10-19-2016

SECTION 24, TOWNSHIP 22 NORTH, RANGE 4 EAST, W.M.
KING COUNTY, WASHINGTON



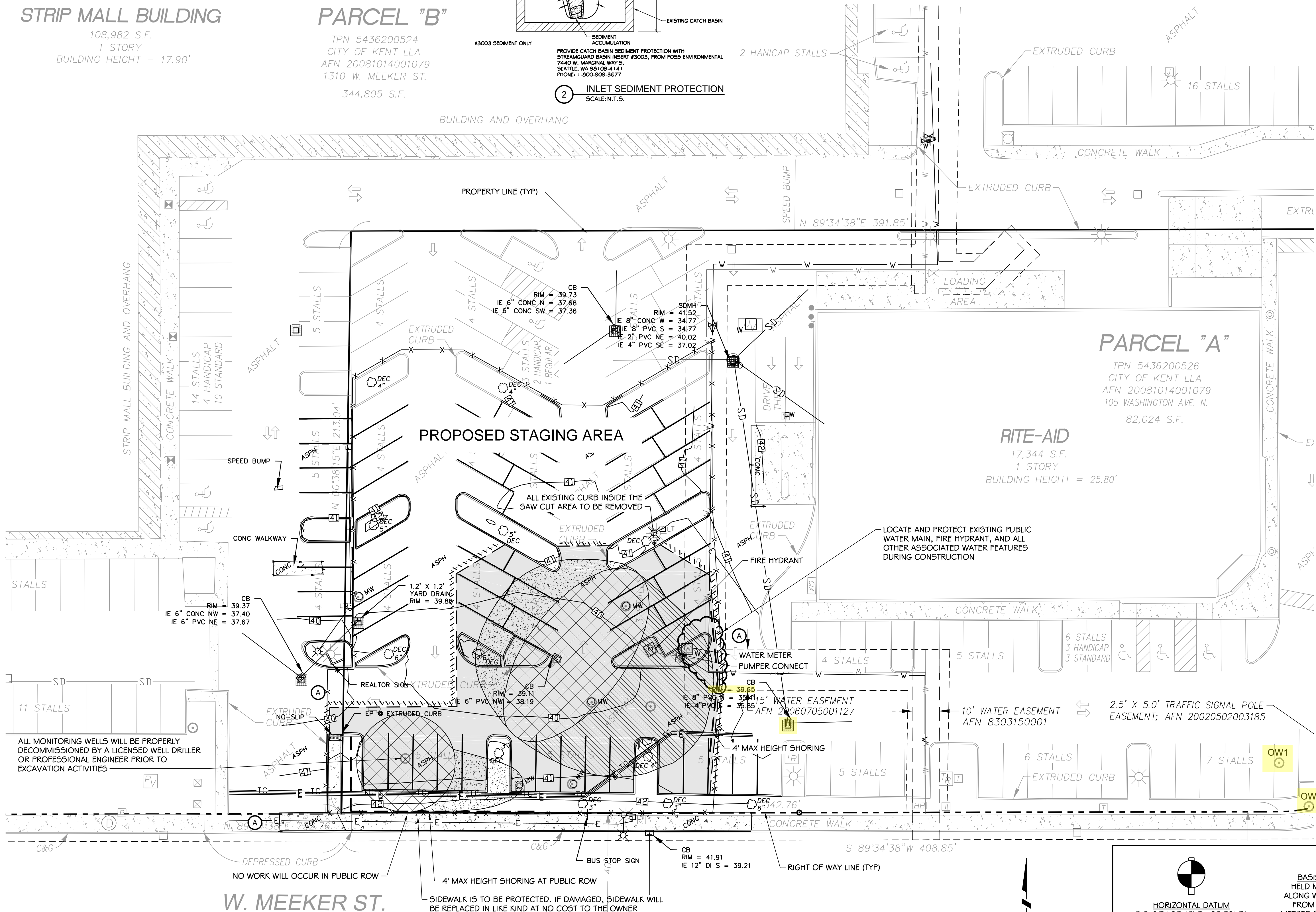
STRIP MALL BUILDING

108,982 S.F.
1 STORY
BUILDING HEIGHT = 17.90'

PARCEL "B"

TPN 5436200524
CITY OF KENT LLA
AFN 20081014001079
1310 W. MEEKER ST.
344,805 S.F.

BUILDING AND OVERHANG



TESC & GRADING PLAN
SCALE: 1" = 20'

PROJECT NOTES:

- TEMPORARY SHORING TO BE CONTRACTOR DESIGNED AND 4' MAXIMUM HEIGHT.
- WATER, SEWER, AND STORM UTILITIES ARE ASSUMED TO BE APPROXIMATE LOCATIONS. CONTRACTOR TO VERIFY EXACT LOCATIONS.
- RESTORE LANDSCAPING, CURBING AND PAVEMENT MARKINGS TO EXISTING CONDITIONS.
- PROTECT ALL EXISTING UTILITIES AND SITE FEATURES.
- CONTRACTOR TO REPLACE ANY DAMAGED UTILITIES AT HIS/HER OWN EXPENSE.
- MAINTAIN ACCESS AT SPECIFIED LOCATIONS: (A)
- ALL MONITORING WELLS WILL BE PROPERLY DECOMMISSIONED BY A LICENSED WELL DRILLER OR PROFESSIONAL ENGINEER PRIOR TO EXCAVATION ACTIVITIES.

LEGEND

■	NO-SLIP
LT	LIGHT JUNCTION BOX
□	YARD DRAIN
D	STORM DRAIN MANHOLE
α	FIRE HYDRANT
EW	WATER METER
W	WATER VAULT
DEC	FIRE DEPT CONNECTION
DEC 3"	DECIDUOUS TREE
○	SIGN AS NOTED
○	MONITORING WELL
○	LUMINAIRE
○	YARD LIGHT
□	CATCH BASIN
—	WATER
—	UNDERGROUND POWER
—	TELECOMMUNICATIONS
—	CHAIN LINK FENCE
□	INLET PROTECTION (2)
—	SAW CUT LINE
—	PROPERTY LINE
—	RIGHT OF WAY LINE
—	EASEMENT LINE
—	STRAW WADDLE
—	TEMPORARY SHORING LINE 4' MAXIMUM HEIGHT

CONTAMINATED SOIL
EXCAVATION AREAS

3' DEPTH	
5' DEPTH	
6' DEPTH	

ESTIMATED EARTHWORK QUANTITIES

3' DEPTH - 109 CY
5' DEPTH - 422 CY
6' DEPTH - 798 CY
TOTAL DEPTH - 1,329 CY

City of Kent approval block (4"x2") provided in lower right corner of each sheet, including permit number above the approval block. Approval block area to be printed with the following:

KIVA No. REMC 2163550

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF KENT ENGINEERING DIVISION'S REQUIREMENTS.

Development Engineer Manager Date

City Engineer Date

Sign-off block provided for Record Drawing certification and printed as follows on each plan sheet, generally in the lower right hand corner:

THESE RECORD PLANS AND THE INFORMATION SHOWN ACCURATELY REFLECT EXISTING FIELD CONDITION AS OF (DATE SIGNED).

BY:

HORIZONTAL DATUM
HELD CITY OF KENT HORIZONTAL CONTROL DATUM (NAD) CONTROL POINT #7513, MONUMENT IN CASE AT INTERSECTION OF MEEKER ST. AND WASHINGTON AVE.

BASIS OF BEARING
HELD MONUMENT LINE ALONG WASHINGTON AVE. FROM MONUMENT AT MEEKER ST. TO MONUMENT AT WILLIS ST.; BEARING = N 89°34'38"E

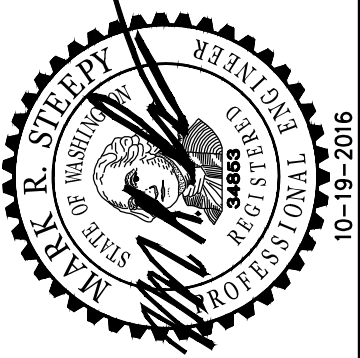
MEEKER REMEDIATION
KENT, WASHINGTON

TESC & GRADING PLAN,
DETAILS & NOTES

DRAWING

C2.0

SHEET 2 OF 3



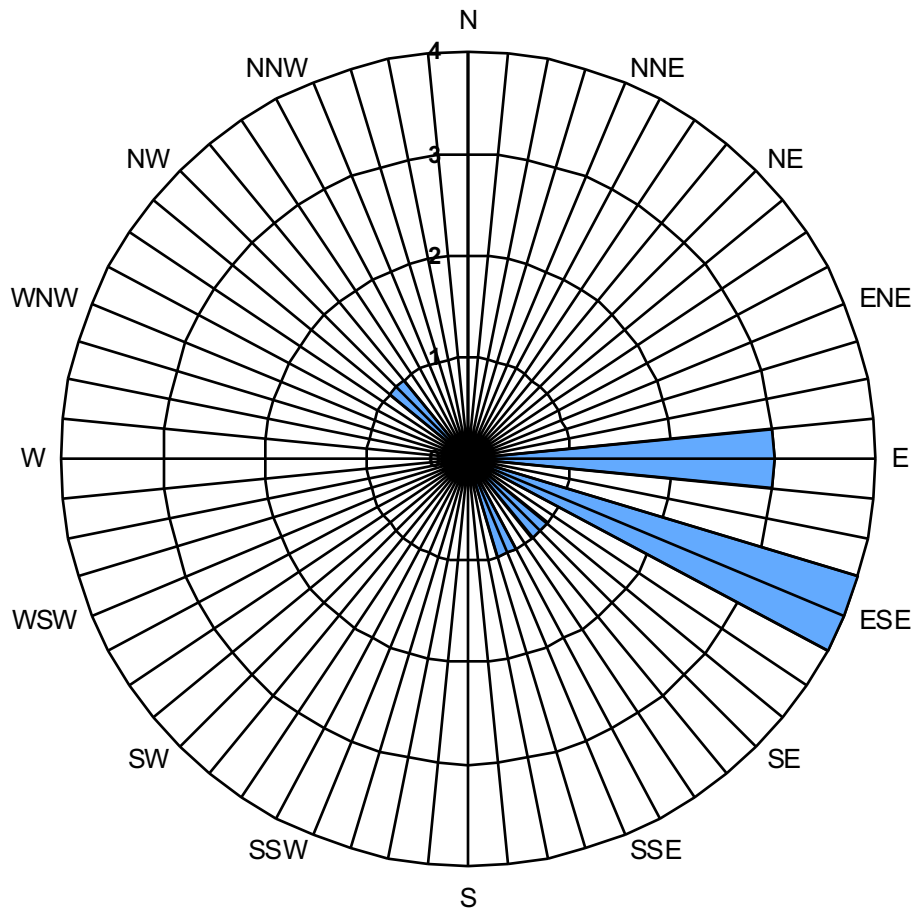
kpff
613 Woodland Square Loop,
Suite 100, WA 98503
360.292.7230
www.kpff.com

CALL
UNDERGROUND
LOCATE TWO (2)
WORKING DAYS
BEFORE YOU
DIG
811

DRAWN BY: NLA
CHECKED BY: REH
DESIGNED BY: MNH
APPROVED BY: MRS
DATE: 10-19-2016
JOB NO: 41600415

Attachment D
Groundwater Rose Diagram

Figure
Groundwater Flow Direction Rose Diagram
Meeker Former Gas Station
105 Washington Avenue N
Kent, Washington



Notes

Concentric circles represent number of monitoring events with determinable flow directions, June 6, 2002 through March 9, 2005, and June 8, 2019; 10 monitoring events shown.

■ Groundwater Flow Direction

Attachment E
Groundwater Modeling Plume Evaluation

<i>Hazardous Substance</i>	<i>GRO</i>
----------------------------	------------

Note: relationship of " $y/x \leq 0.33$ " is preferred

[illegible]

Module 2: Graphical Presentation of Historical Ground Water Data: (Well to Well Analysis)

Site Name: Meeker Former Gas Station Site

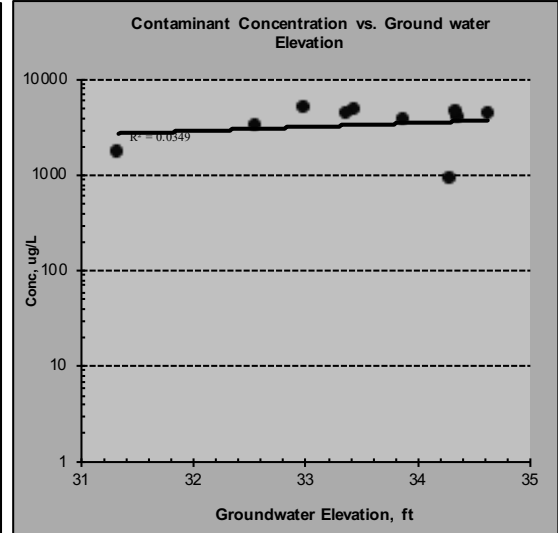
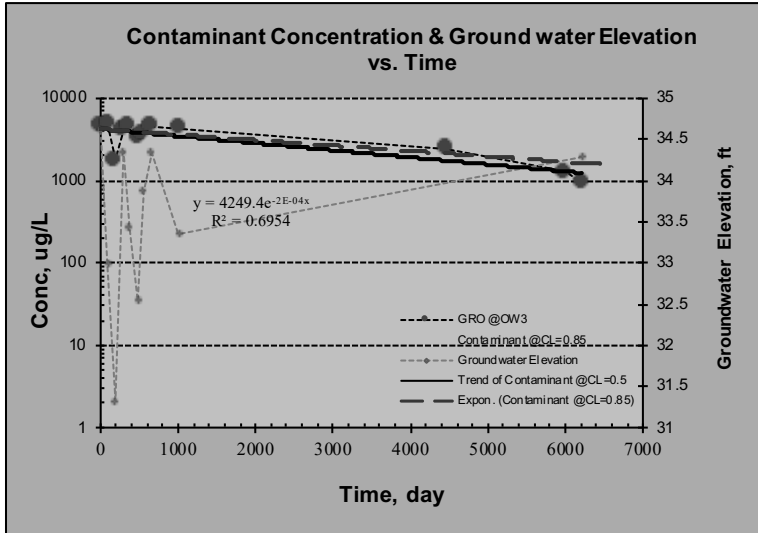
Site Address: 105 Washington Ave N, Kent, WA

Additional Description: Historical gasoline release

Hazardous Substance: GRO

1. Temporal Trend at a Well (Concentration vs. Time & Groundwater Elevation : well-to-well analysis)

Name of Sampling Well?	OW3	Confidence Level (Decision Criteria)?	85.0%
Confidence Level calculated with log-linear regression is?	99.925%		
Plume Stability?	Shrinking ; Decision Criteria is 85%.		
Slope: Point decay rate constant (k_{point}), yr ⁻¹	0.072 @50% C.L.;	0.056 @85% C.L.	
Half Life for k_{point} , yr	9.595 @50% C.L.;	12.423 @85% C.L.	



2. Spatial and Temporal Trend along Overall Plume Length for Multiple Wells:

Plot #1: Sampling date #1

8-Jun-19

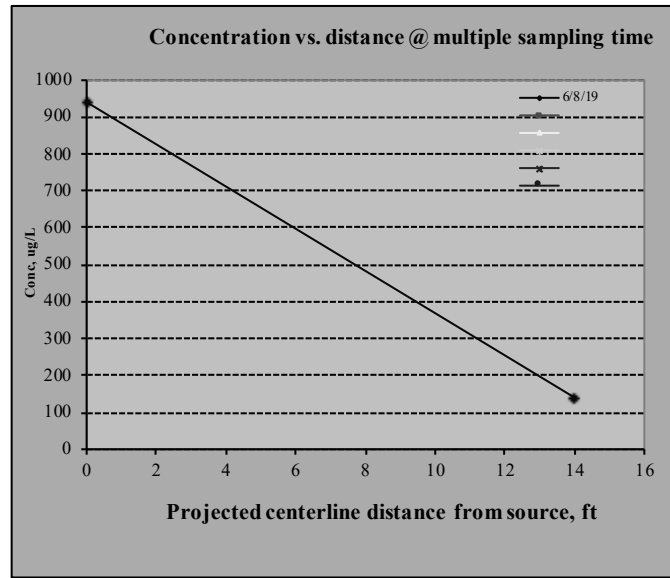
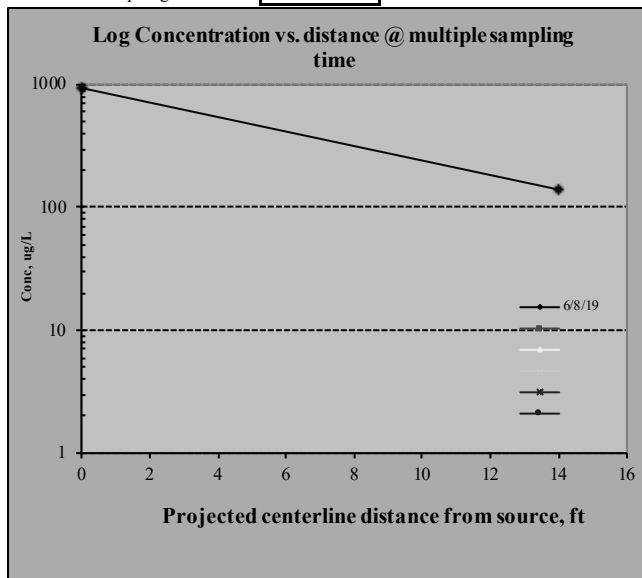
Plot #2: Sampling date #2

Plot #3: Sampling date #3

Plot #4: Sampling date #4

Plot #5: Sampling date #5

Plot #6: Sampling date #6



Module 2: Temporal Analysis: Concentration of contaminant vs. time (Regression Analysis at each well)

Site Name: Meeker Former Gas Station Site

Site Address: 105 Washington Ave N, Kent, WA

Additional Description: Historical gasoline release

Hazardous Substance GRO

1. Level of Confidence (Decision Criteria)?		85%															
2. Prediction: Calculation of Restoration Time and Predicted Concentration at Wells																	
Well Location		OW3	DPT-3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
A. Cleanup Level (Criterion) to be achieved? ug/L		800	800														
A.1 Average (@50% CL best-fitting values)																	
Time to reach the criterion yr		23.12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Date when the Criterion to be achieved date		7/12/25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
A.2 Boundary (@85% CL)																	
Time to reach the criterion ² yr		29.93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Date when the Criterion to be achieved date		5/3/32	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B Date of Prediction?																	
B.1 Average conc predicted (@50% CL) ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B.2 Boundary conc predicted (@85% CL) ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Log-Linear Regression Results																	
Coefficient of Determination r^2		0.695	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Correlation Coefficient r		-0.834	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Number of data points n		12	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4. Statistical Inference on the Slope of the Log-Linear Regression Line with t-statistics																	
One-tailed Confidence Level calculated, %		99.925%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sufficient evidence to support that the slope of the regression line is significantly different from zero?		YES!	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coefficient of Variation?		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Plume Stability?		Shrinking	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5. Calculation of Point Decay Rate Constant (k_{point})																	
Slope: Point decay rate constant (k_{point})	@50% CL yr ⁻¹	0.072	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	@85% CL yr ⁻¹	0.056	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Half Life for (k_{point})	@50% CL yr	9.595	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	@85% CL yr	12.423	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: 1. CL : Confidence Level; UD= Undetermined

2. The length of time that will actually be required is estimated to be no more than years calculated (@ 85% of confidence level.)

Attachment F
Terrestrial Ecological Evaluation Exclusion Form



Voluntary Cleanup Program

Washington State Department of Ecology Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm.

Step 1: IDENTIFY HAZARDOUS WASTE SITE

Please identify below the hazardous waste site for which you are documenting an evaluation.

Facility/Site Name:

Facility/Site Address:

Facility/Site No:

VCP Project No.:

Step 2: IDENTIFY EVALUATOR

Please identify below the person who conducted the evaluation and their contact information.

Name:

Title:

Organization:

Mailing address:

City:

State:

Zip code:

Phone:

Fax:

E-mail:

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

- ☐ Yes *If you answered "YES," then answer **Question 2**.*
- ☐ No or Unknown *If you answered "NO" or "UNKNOWN," then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? Check all that apply. Then skip to **Step 4 of this form.**

Point of Compliance: WAC 173-340-7491(1)(a)

- ☐ All soil contamination is, or will be,* at least 15 feet below the surface.
- ☐ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

- ☐ All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

- ☐ There is less than 0.25 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.
- ☐ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

- ☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

[±] "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

[#] "Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

- ☐ Yes *If you answered "YES," then answer **Question 2** below.*
- ☐ No or Unknown *If you answered "NO" or "UNKNOWN," then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

- ☐ Yes *If you answered "YES," then answer **Question 3** below.*
- ☐ No *If you answered "NO," then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

- ☐ Yes *If you answered "YES," then answer **Question 4** below.*
- ☐ No *If you answered "NO," then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

- ☐ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*
- ☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? Check all that apply. Then skip to **Step 4** of this form.

Exposure Analysis: WAC 173-340-7492(2)(a)

- ☐ Area of soil contamination at the Site is not more than 350 square feet.
- ☐ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

- ☐ No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

- ☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.
- ☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.
- ☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.
- ☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. See WAC 173-340-7493(1)(c).

1. Was there a problem? See WAC 173-340-7493(2).

- ☐ Yes *If you answered "YES," then answer **Question 2** below.*
- ☐ No *If you answered "NO," then identify the reason here and then skip to **Question 5** below:*
- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? See WAC 173-340-7493(3).

- ☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*
- ☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?

Check all that apply. See WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

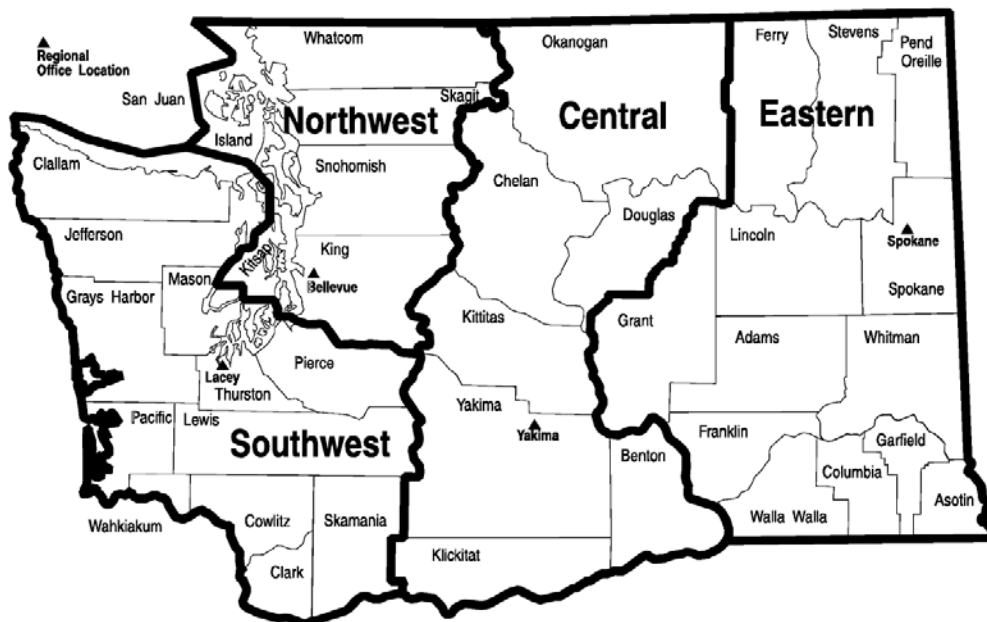
5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

- ☐ Yes If so, please identify the Ecology staff who approved those steps:
- ☐ No

Step 4: SUBMITTAL


Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.

Northwest Region: Attn: VCP Coordinator 3190 160 th Ave. SE Bellevue, WA 98008-5452	Central Region: Attn: VCP Coordinator 1250 West Alder St. Union Gap, WA 98903-0009
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	Eastern Region: Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295



Attachment G
Conceptual Site Model Diagram

Primary Sources	Contaminants of Potential Concern	Media of Concern	Transport Mechanisms	Exposure Media	Exposure Pathway	Current (C) and Potential Future (F) Receptors				
						Commercial Industrial	Construction Worker	Residential/ Recreational	TEE Receptors	
Fuel releases from former underground storage tanks and piping associated with former gas station	Gasoline-Range Organics (GRO) and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) <input checked="" type="checkbox"/> Adsorbed onto soil <input checked="" type="checkbox"/> Dissolved in water <input type="checkbox"/> Non-aqueous phase	<input type="checkbox"/> Surface Soil (0-2 feet bgs)	<input type="checkbox"/> Direct release to soil <input type="checkbox"/> Migration to subsurface soil <input type="checkbox"/> Migration to groundwater <input type="checkbox"/> Volatilization <input type="checkbox"/> Runoff or erosion <input type="checkbox"/> Utake by plant or animal <input type="checkbox"/> Other (list) _____	<input checked="" type="checkbox"/> Soil	<input checked="" type="checkbox"/> Ingestion <input checked="" type="checkbox"/> Dermal Exposure	<input type="checkbox"/>	C,F	<input type="checkbox"/>	<input type="checkbox"/>	
		<input checked="" type="checkbox"/> Soil (> 2 feet bgs)	<input checked="" type="checkbox"/> Direct release to soil <input checked="" type="checkbox"/> Migration to groundwater <input checked="" type="checkbox"/> Volatilization <input type="checkbox"/> Other (list) _____	<input checked="" type="checkbox"/> Groundwater	<input checked="" type="checkbox"/> Ingestion <input checked="" type="checkbox"/> Dermal Exposure	<input type="checkbox"/>	C,F	<input type="checkbox"/>	<input type="checkbox"/>	
		<input checked="" type="checkbox"/> Groundwater	<input checked="" type="checkbox"/> Release to groundwater <input checked="" type="checkbox"/> Volatilization <input type="checkbox"/> Future migration to surface water <input type="checkbox"/> Future migration to sediment <input type="checkbox"/> Uptake by plant or animal <input type="checkbox"/> Other (list) _____	<input checked="" type="checkbox"/> Air	<input checked="" type="checkbox"/> Inhalation	<input type="checkbox"/>	C,F	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/> Surface Water	<input type="checkbox"/> Release to surface water <input type="checkbox"/> Volatilization <input type="checkbox"/> Sedimentation <input type="checkbox"/> Uptake by plant or animal <input type="checkbox"/> Other (list) _____	<input type="checkbox"/> Surface Water	<input type="checkbox"/> Ingestion <input type="checkbox"/> Dermal Contact	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/> Sediment	<input type="checkbox"/> Release to surface water <input type="checkbox"/> Resuspension or erosion <input type="checkbox"/> Uptake by plant or animal <input type="checkbox"/> Other (list) _____	<input type="checkbox"/> Sediment	<input type="checkbox"/> Ingestion <input type="checkbox"/> Dermal Contact	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/> Indoor Air	<input type="checkbox"/> Inhalation	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	

ATTACHMENT G CONCEPTUAL SITE MODEL			
PREPARED BY	 ENVIRONMENTAL PARTNERS INC		
REPORT	REVISED REMEDIAL INVESTIGATION, FEASIBILITY STUDY, AND CLEANUP ACTION PLAN		
LOCATION	MEEKER FORMER GAS STATION SITE 105 WASHINGTON AVENUE N, KENT, WASHINGTON		
PREPARED FOR	MJR DEVELOPMENT		
DATE 8/22/19	CREATED BY TS	REVIEWED BY EK	PROJECT NUMBER 65112.5

Attachment H
Environmental Covenant Template

Environmental Covenant for MTCA Sites: Instructions for Use and Covenant Template

Established: August 20, 2015

Revised: December 22, 2016

To: Interested Persons

From: James. J. Pendowski, Program Manager
Toxics Cleanup Program



Contact: Policy & Technical Support Unit, Headquarters

Note: This is Attachment C in Procedure 440A. For additional instructions on using this Covenant, please see Toxics Cleanup Program's **Procedure 440A: Establishing Environmental Covenants under the Model Toxics Control Act**, publication no. 15-09-054.

Instructions for Use

The following steps provide guidance on how to develop an environmental covenant using the enclosed template. While the exact sequence of steps, as well as who conducts the work (Ecology, potentially liable person (PLP) or Voluntary Cleanup Program (VCP) customer), may vary from site to site, all of the elements identified here must be addressed. When requesting a Covenant, Ecology should identify which steps are the responsibilities of the PLP or VCP customer at the site. Questions about specific provisions in the Covenant template should be directed to the Ecology Cleanup Project Manager assigned to the site. If no Cleanup Project Manager has been assigned, contact Ecology's Toxics Cleanup Program at (360) 407-7170 and ask for advice from the Toxics Cleanup Program (TCP) Policy Unit.

Step 1: Identify the Parcels Subject to the Covenant

Using the County Assessors Tax records, identify the parcels subject to the Covenant. Even though the site (or part of the site subject to the Covenant) may be owned by one entity, it may actually encompass more than one parcel of real property as shown on the County's property (and tax) records.

Step 2: Identify the Specific Activity and Use Restrictions for the Property

Create a conceptual list of specific prohibited activities (e.g., don't drill wells on the property) and prohibited uses (e.g., property can't be used for residential uses).

Work with the PLP/VCP customer, the property owner, and owners of other property interests (if different) to refine the language implementing these restrictions.

Step 3: Consult with the Local Government Land Use Planning Authority

The Uniform Environmental Covenants Act (UECA) and Model Toxics Control Act (MTCA) require Ecology to "consult" with the local government land use planning authority on the terms of the Covenant. While technically the Mayor/Executive is this authority, this guidance recommends contacting the staff that who work with land use issues. However, if the jurisdiction prefers the contact be through the local elected executive, work through the Mayor/Executive instead.

Ideally, before drafting the Covenant, Ecology staff should discuss the proposed restrictions with the local government staff by phone or email. **Once the Covenant has been drafted, the full covenant should be sent to the local government for review.** This consultation should be done by Ecology, but may be delegated to the PLP or VCP customer, upon agreement by Ecology.

The purpose of this consultation is to identify provisions in the Covenant that might conflict with current or future land use plans and development regulations for the property. For example, a provision requiring the land to remain in industrial use won't hold up in the long term if the comprehensive plans for the area call for future mixed residential and commercial use development. Similarly, a provision prohibiting infiltration of stormwater anywhere on the property may conflict with local development regulations requiring all stormwater to be retained and infiltrated on the property. If there is a conflict, see if it's possible to apply the restriction to only part of the property where the exposure pathway is of concern.

Use the following table as a guide for whom to contact:

Jurisdiction	Department
City or Town	City or Town Planning Department
Unincorporated Areas	County Planning Department
Urban Growth Areas not Annexed to City or Town ¹	Both City or Town Planning Department and County Planning Department

Note: In larger communities, planning staff who work on zoning and comprehensive plan issues are typically different than those who review development proposals. *Make sure you are talking to the right staff.*

¹ City limits and urban growth area should be identified in the City's and County's comprehensive plans. They can typically be found on the local jurisdiction's website. If not, call the jurisdiction's staff to obtain a copy.

Step 4: Confirm the Recorded Interests in the Property

To determine who owns the property and any relevant property interests that may need to be superseded by the Covenant, a title search must be conducted to identify all recorded interests in the Property. The title search should be the responsibility of the PLP (or VCP customer) and conducted by a title company. **The results of this search, typically called a title report or plat certificate, must be included with any request asking Ecology to sign a Covenant.** An uninsured title report is sufficient for this purpose.

In general, the title search should be no more than six months old to ensure it reflects the current status of the property. However, under some circumstances, Ecology may accept an older title search, such as that completed during the PLP identification process. Accepting older title searches should be done only if Ecology has been closely involved with the site during the intervening time period since the last title search, and there is no reason to suspect the owner has changed or an easement or other interest in the property has been granted. Examples of changes that would trigger the need for a new title search are:

- Establishment of a new business on the property;
- Change in the name of the business currently on the property;
- Subdivision of the property;
- Construction of new utilities or roads across the property;
- Foreclosure on the property;
- Change in the status of the persons owning the property (death, divorce or marriage); and
- Bankruptcy of the site owner or operator.

Step 5: Determine Who Needs to Sign the Covenant

Real property interests are prioritized according to the date on which they were recorded with the land record authority. Such interests include not only ownership of the property, but may also include mortgages; tax or mechanics' liens; utility easements; surface land rights; and judgments. If a senior mortgage holder forecloses on the property, for instance, it may be able to dispose of all other interests, including Ecology's Covenant. For this reason, to ensure the restrictions in a Covenant are enforceable, the Covenant must supersede these pre-existing property interests.

Grantors or signatories to a Covenant not only are granting access to Ecology and agreeing to adhere to the restrictions on future activities or uses of the property, they are also agreeing to be responsible for any "affirmative obligations" described in the Covenant, such as maintaining the remedy and monitoring.

Signing a subordination agreement means the person holding a senior property interest is agreeing that the Covenant takes precedent over their interest, including providing Ecology with access, and consenting to the restrictions on future uses and activities on the property. However, they are not necessarily agreeing to the affirmative obligations in the Covenant.

Use the following as a guide to determine who must sign the Covenant as a grantor or subordinate their interests:

a) Persons holding fee simple title to the property (i.e., landowners).

The landowner must always sign the Covenant as a Grantor.

b) Persons holding other property interests (such as easements, right-of-ways, water & mineral rights).

In general, if a person holds a title to:

- a) An easement or right-of-way,

b) Water rights (if groundwater use is restricted); or

c) Mineral rights,

...that is located within the area of activity or use restrictions, and compliance with those restrictions could be overridden by the person exercising their rights, then the person holding the title should either:

a) Sign the covenant as a Grantor, or

b) Subordinate their interests by signing a subordination agreement.

However, if a current contact cannot be located, or if the holder's interest is not critical to the success of the Covenant, it is probably not necessary to expend a lot of effort to track them down and obtain a signature. For example, many properties, especially in eastern Washington State, have underlying mineral rights that are controlled by someone different than the owner. In most urban areas it is unlikely those rights would be exercised to the detriment of the remedy, and so there would be no reason to pursue a signature.

Similarly, the holder of an easement or right-of-way for overhead power lines that is unlikely to affect the performance of the remedy does not need to be pursued.

However, if a cap is part of the remedy, and the easement or right-of-way grants the holder the right to conduct activities that could compromise the integrity of the cap (such as installation and maintenance of road or an underground utility), these holders should be required to sign the Covenant as a Grantor or subordinate their interests.

c) Persons holding encumbrances on the property (such as lien and mortgage holders).

In general, persons holding a lien have merely a monetary interest (lien imposed because of lack of payment of a bill) and do not need to sign the Covenant or subordinate their interests. However, if the lien holder is claiming a right that could affect the performance of the remedy, such as control over future sale and development of the property, then they should be required to subordinate their interest.

Mortgage holders such as banks usually hold the title to the property until the property owner pays off the loan for purchase of the property. Should they foreclose on a property, they may be able to extinguish all subsequent interests, including Ecology's Covenant. As such, they should be required to sign a subordination agreement.

A Covenant or subordination agreement must be voluntarily granted. There may be circumstances where the holder of an interest or encumbrance on the property (other than the property owner) refuses to grant a Covenant or subordinate their interests, can't be located, or are not responsive. In these cases, the Ecology Cleanup Project Manager should, in consultation with the Assistant Attorney General assigned to the site, consider the success of the remedy without their signature. If it is deemed necessary to secure their signature and they refuse to sign, then a more complete cleanup will be required.

In cases where there is minimal risk to the success of the remedy and it is decided to proceed without their signature, a letter should be sent to the holder of this interest or encumbrance notifying them that, should they do anything on the property that affects the integrity of the remedial action or results in a release of a hazardous substance, they could trigger liability under MTCA. If the holder of this interest is unresponsive or cannot be located, work with the Assistant Attorney General assigned to the site on an appropriate notification procedure.

Step 6: Prepare the Covenant

Use the attached Ecology template to prepare the Covenant.

A precise legal description of the Property and any interests in the Property (such as an easement) is essential to know where the Covenant applies. A map must also be developed to provide a visual representation of where the restrictions apply on the Property.

- If the restrictions apply to the entire Property, the legal description in the Property deed and a map of the Property should be sufficient.
- If the restrictions apply to only part of the Property, a new legal description and map will need to be developed, and boundary markers or reference monuments will need to be established on the Property by a licensed surveyor.

If the Property includes more than one parcel of real property, the legal description and map should cover all of the parcels. This will enable recording of the same covenant on each parcel instead of creating and recording a different covenant for each parcel.

There are specific formatting requirements that apply to recorded Covenants. For example, there must be a three inch margin on the top of the first page and a one inch margin on the bottom and sides. See Chapter 65.04.045 RCW for additional format requirements.

Step 7: Public Involvement

In general, there is no requirement for a public notice and comment period on a Covenant, other than the requirement for local government consultation discussed above. However, because a Covenant can affect future uses of a property and potentially impact future development in the area, any public notice issued for the cleanup action plan or order or decree governing the cleanup should highlight the fact that there will be restrictions on future activities or uses of the property.

For sites with a high level of public interest or controversy, it may be appropriate to provide a separate opportunity for public comment. The Ecology Cleanup Project Manager should consult with the public involvement specialist assigned to the site regarding the appropriate level of public involvement.

Step 8: Sign the Covenant

The Ecology Cleanup Project Manager must ensure all appropriate persons sign the Covenant and that each of those signatures is notarized. This responsibility can be delegated to the PLP (or VCP applicant) but Ecology staff must verify this step has been completed.

Ecology's representative should sign the Covenant only after all other parties to the Covenant have signed.

Step 9: Record the Covenant

The Covenant must be recorded on the title of each parcel of real property subject to the Covenant. Recording is done by the County Auditor. If the area covered by the Covenant extends across a County boundary, the Covenant will have to be recorded in both Counties.

Step 10: Send the Recorded Covenant to Ecology and Others per RCW 64.70.070

- a. Send the original recorded Covenant to Ecology's contact for the site. ²
- b. Send a legible copy of the recorded Covenant, with the recording number evident, to the following persons (per RCW 64.70.070):
 - Each person who signed the Covenant.
 - Each person holding a recorded interest in the real property subject to the Covenant (including each person who subordinated their interests to Ecology's Covenant).
 - Each person in possession of the real property subject to the Covenant at the time the Covenant is executed (such as renters).
 - The local government planning authority in which the real property subject to the Covenant is located.
 - Any other person to whom the Covenant expressly grants the power to enforce the Covenant.
 - Any other persons required by Ecology.

Note: These instructions and attached template are intended solely for the guidance of Ecology staff. They are not intended, and cannot be relied on, to create rights, substantive or procedural, enforceable by any party in litigation with the state of Washington. Ecology may act at variance with these instructions and the attached template depending on site-specific circumstances, or modify or withdraw these documents at any time.

² Some Counties retain the original. If that is the case, make sure Ecology receives a legible copy of the recorded Covenant with all the signatures and with recorded notation.

Environmental Covenant for MTCA Sites: Covenant Template

*See Toxics Cleanup Program's **Procedure 440A** for
additional instructions on the use of this Covenant.*

**Text highlighted by yellow are instructions/comments and options.
Those instructions and related footnotes should be removed from the Covenant.**

After Recording Return

Original Signed Covenant to: ¹

[ECOLOGY SITE MANAGER]

Toxics Cleanup Program

Department of Ecology

[ECOLOGY OFFICE ADDRESS]

NOTE: This Covenant is not valid without Ecology's approval and signature.

Environmental Covenant

(For MTCA Sites – August 20, 2015 Version)

Grantor: [NAME OF THE LANDOWNER OR OTHER GRANTOR] ²

Grantee: State of Washington, Department of Ecology (hereafter "Ecology")

Brief Legal Description: [BRIEF LEGAL DESCRIPTION]

Tax Parcel Nos.: [INSERT TAX PARCEL NUMBERS]

Cross Reference: [SEE BOX]

- **If superseding or amending an existing Covenant, insert one of the following:**
"Original Covenant # ____ (superseding)" OR "Original Covenant # ____ (amending)"
- **Insert a reference to any subordination agreements, if separately recorded**
- **Insert a list of other related documents such as consent decree, order, or NFA opinion**
- **Otherwise, delete**

RECITALS ³

a. This document is an environmental (restrictive) covenant (hereafter "Covenant") executed pursuant to the Model Toxics Control Act ("MTCA"), chapter 70.105D RCW, and Uniform Environmental Covenants Act ("UECA"), chapter 64.70 RCW.

b. The Property that is the subject of this Covenant is part or all of a site commonly known as [ECOLOGY SITE NAME AND FACILITY ID]. The Property is legally described in Exhibit A, and illustrated in Exhibit B, both of which are attached (hereafter "Property"). If there are differences between these two Exhibits, the legal description in Exhibit A shall prevail.

c. The Property is the subject of remedial action conducted under MTCA. This Covenant is required because residual contamination remains on the Property after completion of remedial actions. Specifically, the following principal contaminants remain on the Property: ⁴

¹ Some counties keep the original Covenant, others don't. If the signed original is available, it must be sent to Ecology. If the signed original is not available, send a legible copy to Ecology.

² The Grantor of a Covenant typically is the fee simple land owner of the property. The Grantor may also include holders of other property interests such as a holder of an easement, right-of-way, mineral right, lien, or mortgage.

³ This section is primarily used to describe this document and its purpose. It should not be used for substantive binding provisions.

⁴ List the contaminants for the associated media. If more than a few are present, list the top three to five for each medium.

Medium	Principal Contaminants Present
Soil	
Groundwater	
Surface Water/Sediment	

d. It is the purpose of this Covenant to restrict certain activities and uses of the Property to protect human health and the environment and the integrity of remedial actions conducted at the site. Records describing the extent of residual contamination and remedial actions conducted are available through Ecology. **[Optional--This includes the following documents: (list key documents such as RI/FS, Cleanup Action Plan, Voluntary Cleanup Report(s), As-built report)].**

e. This Covenant grants Ecology certain rights under UECA and as specified in this Covenant. As a Holder of this Covenant under UECA, Ecology has an interest in real property, however, this is not an ownership interest which equates to liability under MTCA or the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 *et seq.* The rights of Ecology as an “agency” under UECA, other than its’ right as a holder, are not an interest in real property.

f. **[Include the following statement if this Covenant is superseding another environmental covenant.]** This Covenant supersedes and replaces the existing Environmental (Restrictive) Covenant, which is recorded with [] County as **[# OF ORIGINAL COVENANT]**.

COVENANT

[NAME OF LANDOWNER OR OTHER GRANTOR], as Grantor ⁵ and **[FEE SIMPLE, EASEMENT OR OTHER]** owner of the Property hereby grants to the Washington State Department of Ecology, and its successors and assignees, the following covenants. Furthermore, it is the intent of the Grantor that such covenants shall supersede any prior interests the GRANTOR has in the property and run with the land and be binding on all current and future owners of any portion of, or interest in, the Property.

Section 1. General Restrictions and Requirements.

The following general restrictions and requirements shall apply to the Property:

a. **Interference with Remedial Action.** The Grantor shall not engage in any activity on the Property that may impact or interfere with the remedial action and any operation, maintenance, inspection or monitoring of that remedial action without prior written approval from Ecology.

b. **Protection of Human Health and the Environment.** The Grantor shall not engage in any activity on the Property that may threaten continued protection of human health or the environment without prior written approval from Ecology. This includes, but is not limited to, any activity that results in the release of residual contamination that was contained as a part of the remedial action or that exacerbates or creates a new exposure to residual contamination remaining on the Property.

⁵ If there is more than one Grantor, use the term “Grantors” here and throughout this document.

c. Continued Compliance Required. Grantor shall not convey any interest in any portion of the Property without providing for the continued adequate and complete operation, maintenance and monitoring of remedial actions and continued compliance with this Covenant.

d. Leases. Grantor shall restrict any lease for any portion of the Property to uses and activities consistent with this Covenant and notify all lessees of the restrictions on the use of the Property.

e. Preservation of Reference Monuments. Grantor shall make a good faith effort to preserve any reference monuments and boundary markers used to define the areal extent of coverage of this Covenant. Should a monument or marker be damaged or destroyed, Grantor shall have it replaced by a licensed professional surveyor within 30 days of discovery of the damage or destruction.

Section 2. Specific Prohibitions and Requirements.

In addition to the general restrictions in Section 1 of this Covenant, the following additional specific restrictions and requirements shall apply to the Property.

[See Appendix 1 for example restrictions.]

Select from the restrictions in Appendix 1 as appropriate, based on site-specific circumstances. Most sites will have only some of these restrictions. Options are provided to illustrate the range of potential restrictions. In some cases, the options are mutually exclusive (pick one or the other, but not both). In other cases, several options may need to be combined to cover the range of conditions at the site. This is not intended to be an all-inclusive list. In circumstances where none of the categories or suggested options fit the site conditions, adjust the language as appropriate to fit the situation.

- a. Land use.**
- b. Containment of soil/waste materials.**
- c. Stormwater facilities.**
- d. Vapor/gas controls.**
- e. Groundwater use.**
- f. Sediments.**
- g. Monitoring.**
- h. Other.**

Section 3. Access.

a. The Grantor shall maintain clear access to all remedial action components necessary to construct, operate, inspect, monitor and maintain the remedial action.

b. The Grantor freely and voluntarily grants Ecology and its authorized representatives, upon reasonable notice, the right to enter the Property at reasonable times to evaluate the effectiveness of this Covenant and associated remedial actions, and enforce compliance with this Covenant and those actions, including the right to take samples, inspect any remedial actions conducted on the Property, and to inspect related records.

c. No right of access or use by a third party to any portion of the Property is conveyed by this instrument.

Section 4. Notice Requirements.

a. Conveyance of Any Interest. The Grantor, when conveying any interest [IN ANY PART OF THE PROPERTY] **OR** [WITHIN THE AREA OF THE PROPERTY DESCRIBED AND ILLUSTRATED IN EXHIBITS B AND C], including but not limited to title, easement, leases, and security or other interests, must:

- i. Provide written notice to Ecology of the intended conveyance at least thirty (30) days in advance of the conveyance.⁶
- ii. Include in the conveying document a notice in substantially the following form, as well as a complete copy of this Covenant:

NOTICE: THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL COVENANT GRANTED TO THE WASHINGTON STATE DEPARTMENT OF ECOLOGY ON [DATE] AND RECORDED WITH THE [COUNTY] COUNTY AUDITOR UNDER RECORDING NUMBER [RECORDING NUMBER]. USES AND ACTIVITIES ON THIS PROPERTY MUST COMPLY WITH THAT COVENANT, A COMPLETE COPY OF WHICH IS ATTACHED TO THIS DOCUMENT.

- iii. Unless otherwise agreed to in writing by Ecology, provide Ecology with a complete copy of the executed document within thirty (30) days of the date of execution of such document.

b. Reporting Violations. Should the Grantor become aware of any violation of this Covenant, Grantor shall promptly report such violation in writing to Ecology.

c. Emergencies. For any emergency or significant change in site conditions due to Acts of Nature (for example, flood or fire) resulting in a violation of this Covenant, the Grantor is authorized to respond to such an event in accordance with state and federal law. The Grantor must notify Ecology in writing of the event and response actions planned or taken as soon as practical but no later than within 24 hours of the discovery of the event.

d. Notification procedure. Any required written notice, approval, reporting or other communication shall be personally delivered or sent by first class mail to the following persons. Any change in this contact information shall be submitted in writing to all parties to this Covenant. Upon mutual agreement of the parties to this Covenant, an alternative to personal delivery or first class mail, such as e-mail or other electronic means, may be used for these communications.

⁶ Ecology may waive this notice provision for some units at a Property where the anticipated use is a multi-tenant/owner building where some owners or tenants are unlikely to be exposed to residual contamination. For example: upper story apartments or condominiums, or commercial tenants in a strip mall, with limited rights to use the grounds under and around the building (such as for parking).

If Ecology agrees to such a waiver, the circumstances of the waiver must be detailed in paragraph 4.a.i. In addition to the specific circumstances, this provision must include the following statement: "Waiver of this advance notice to Ecology for these transactions does not constitute waiver of this notice for the entire Property nor a waiver of the requirement in Section 4.a.ii. to include this notice in any document conveying interest in the Property."

<p>[insert contact name, address, phone number and e-mail for Grantor]</p>	<p>Environmental Covenants Coordinator Washington State Department of Ecology Toxics Cleanup Program P.O. Box 47600 Olympia, WA 98504 – 7600 (360) 407-6000 ToxicsCleanupProgramHQ@ecy.wa.gov</p>
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Section 5. Modification or Termination.

a. Grantor must provide written notice and obtain approval from Ecology at least sixty (60) days in advance of any proposed activity or use of the Property in a manner that is inconsistent with this Covenant.⁷ For any proposal that is inconsistent with this Covenant and permanently modifies an activity or use restriction at the site:⁸

i. Ecology must issue a public notice and provide an opportunity for the public to comment on the proposal; and

ii. If Ecology approves of the proposal, the Covenant must be amended to reflect the change before the activity or use can proceed.

b. If the conditions at the site requiring a Covenant have changed or no longer exist, then the Grantor may submit a request to Ecology that this Covenant be amended or terminated. Any amendment or termination of this Covenant must follow the procedures in MTCA and UECA and any rules promulgated under these chapters.

c. **[Optional]** By signing this agreement, per RCW 64.70.100, the original signatories to this agreement, other than Ecology, agree to waive all rights to sign amendments to and termination of this Covenant.⁹

Section 6. Enforcement and Construction.

a. This Covenant is being freely and voluntarily granted by the Grantor.

b. Within ten (10) days of execution of this Covenant, Grantor shall provide Ecology with an original signed Covenant and proof of recording and a copy of the Covenant and proof of recording to others required by RCW 64.70.070.

c. Ecology shall be entitled to enforce the terms of this Covenant by resort to specific performance or legal process. All remedies available in this Covenant shall be in addition to any

⁷ Example of inconsistent uses are using the Property for a use not allowed under the covenant (i.e. mixed residential and commercial use on a property restricted to industrial uses), OR drilling a water supply well when use of the groundwater for water supply is prohibited by the covenant.

⁸ An example of an activity that is unlikely to be considered a permanent modification is a proposal to disturb a cap to repair an existing underground utility that passes through the site. However, installing a new underground utility within a capped area would be a permanent change.

⁹ As time passes, the original grantor and other signers of the Covenant may no longer exist as viable entities. This provision is intended to allow future amendments or termination of the Covenant without Ecology having to seek court authorization, as provided by RCW 64.70.100.

and all remedies at law or in equity, including MTCA and UECA. Enforcement of the terms of this Covenant shall be at the discretion of Ecology, and any forbearance, delay or omission to exercise its rights under this Covenant in the event of a breach of any term of this Covenant is not a waiver by Ecology of that term or of any subsequent breach of that term, or any other term in this Covenant, or of any rights of Ecology under this Covenant.

d. The Grantor shall be responsible for all costs associated with implementation of this Covenant. Furthermore, the Grantor, upon request by Ecology, shall be obligated to pay for Ecology's costs to process a request for any modification or termination of this Covenant and any approval required by this Covenant.

e. This Covenant shall be liberally construed to meet the intent of MTCA and UECA.

f. The provisions of this Covenant shall be severable. If any provision in this Covenant or its application to any person or circumstance is held invalid, the remainder of this Covenant or its application to any person or circumstance is not affected and shall continue in full force and effect as though such void provision had not been contained herein.

g. A heading used at the beginning of any section or paragraph or exhibit of this Covenant may be used to aid in the interpretation of that section or paragraph or exhibit but does not override the specific requirements in that section or paragraph.

[GRANTOR'S SIGNATURE BLOCK FOR ORIGINAL COVENANTS]

Each person who signs must have a separate signature block and applicable notary acknowledgment. Repeat as many times as necessary.

Holders of other property interests must either sign the amended Covenant as a GRANTOR or sign the subordination agreement in Exhibit D.

The undersigned Grantor warrants he/she holds the title **[to the Property] OR [to an (Easement/Right of Way/etc.) on the Property]** and has authority to execute this Covenant.

EXECUTED this _____ day of _____, 20__.

_____ **[SIGNATURE]** _____

by: _____ **[PRINTED NAME]** _____

Title: _____

Insert one of the following, as applicable after each signature. See example format on page after next:

INDIVIDUAL ACKNOWLEDGMENT

CORPORATE ACKNOWLEDGMENT

REPRESENTATIVE ACKNOWLEDGEMENT

[GRANTOR'S SIGNATURE BLOCK FOR AMENDED COVENANTS]

Each person who signs must have a separate signature block and applicable notary acknowledgment. Repeat as many times as necessary.

When amending a Covenant, each GRANTOR of the existing Covenant must sign the amended Covenant unless the GRANTOR waived its rights under Section 5(b) of the Covenant.

Holders of other property interests must either sign the amended Covenant as a GRANTOR or sign the subordination agreement in Exhibit D.

The undersigned Grantor warrants he/she holds the title **[to the Property] OR [to an (Easement/Right of Way/etc.) on the Property]** and has authority to execute this Covenant.

EXECUTED this _____ day of _____, 20____.

The undersigned further acknowledges **[Environmental or Restrictive]** Covenant **[# OF THE ORIGINAL COVENANT]** filed in **[]** County, is hereby terminated and replaced with the above Environmental Covenant.

_____ **[SIGNATURE]** _____

by: _____ **[PRINTED NAME]** _____

Title: _____

Insert one of the following, as applicable. See example format on next page:

INDIVIDUAL ACKNOWLEDGMENT

CORPORATE ACKNOWLEDGMENT

REPRESENTATIVE ACKNOWLEDGEMENT

INDIVIDUAL ACKNOWLEDGMENTSTATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** is the individual described herein and who executed the within and foregoing instrument and signed the same at **his/her** free and voluntary act and deed for the uses and purposes therein mentioned.

Notary Public in and for the State of Washington ¹⁰
Residing at _____
My appointment expires _____

CORPORATE ACKNOWLEDGMENTSTATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** is the _____ of the corporation that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that **he/she** was authorized to execute said instrument for said corporation.

Notary Public in and for the State of Washington ¹⁵
Residing at _____
My appointment expires _____

REPRESENTATIVE ACKNOWLEDGEMENTSTATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** signed this instrument, on oath stated that **he/she** was authorized to execute this instrument, and acknowledged it as the _____ [TYPE OF AUTHORITY] of _____ [NAME OF PARTY BEING REPRESENTED] to be the free and voluntary act and deed of such party for the uses and purposes mentioned in the instrument.

Notary Public in and for the State of Washington ¹⁵
Residing at _____
My appointment expires _____

¹⁰ Where landowner is located out of state, replace with appropriate out-of-state title and location.

[ECOLOGYS SIGNATURE BLOCK]

The Department of Ecology, hereby accepts the status as GRANTEE and HOLDER of the above Environmental Covenant.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

_____ **[SIGNATURE]** _____

by: _____ **[PRINTED NAME]** _____

Title: _____

Dated: _____

STATE ACKNOWLEDGMENT

STATE OF _____

COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** is the _____ of the state agency that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed, for the uses and purposes therein mentioned, and on oath stated that **he/she** was authorized to execute said instrument for said state agency.

Notary Public in and for the State of Washington

Residing at _____

My appointment expires _____

Exhibit A

LEGAL DESCRIPTION

(Required)

Exhibit B

PROPERTY MAP

(Required)

Exhibit C

MAP ILLUSTRATING LOCATION OF RESTRICTIONS

While a map illustrating the location of the restrictions is required, the grantor has the option of creating a separate map or including this information in Exhibit B.

More than one map may be necessary to illustrate the area subject to restrictions. For example, the area encompassing a soil cap may be different than the area where vapor or groundwater contamination is a concern.

The area subject to the restrictions, if less than the entire property, should be a contiguous area with even boundaries that follow physical features on the site so the boundary can be easily discerned in the field.

Exhibit D**SUBORDINATION AGREEMENT**

KNOW ALL PERSONS, That __ [HOLDER'S NAME] __, the owner and holder of that certain __ [INSTRUMENT – E.G. EASEMENT/ROW/MORTGAGE/ETC.] __ bearing the date the _____ day of __ [MONTH] __, __ [YEAR] __, executed by __ [NAME OF PERSON THAT GRANTED THE INTEREST BEING SUBORDINATED] __, __ [LEGAL STATUS OF ORIGINAL GRANTOR – E.G. LANDOWNER, CORPORATE OFFICER, ETC.] __, and recorded in the office of the County Auditor of __ [COUNTY] __ County, State of Washington, on __ [DATE] __, under Auditor's File Number _____, does hereby agree that said Instrument shall be subordinate to the interest of the State of Washington, Department of Ecology, under the environmental (restrictive) covenant dated __ [DATE] __, executed by __ [NAME OF PERSON SIGNING THIS SUBORDINATION AGREEMENT] __, and recorded in __ [COUNTY] __ County, Washington under Auditor's File Number _____.

_____ [SIGNATURE] _____

by: _____ [PRINTED NAME] _____

Title: _____

Dated: _____

Insert one of the following, as applicable. See example format on next page:

INDIVIDUAL ACKNOWLEDGMENT

CORPORATE ACKNOWLEDGMENT

REPRESENTATIVE ACKNOWLEDGEMENT

INDIVIDUAL ACKNOWLEDGMENTSTATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** is the individual described herein and who executed the within and foregoing instrument and signed the same at **his/her** free and voluntary act and deed for the uses and purposes therein mentioned.

Notary Public in and for the State of Washington ¹¹
Residing at _____
My appointment expires _____

CORPORATE ACKNOWLEDGMENTSTATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** is the _____ of the corporation that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that **he/she** was authorized to execute said instrument for said corporation.

Notary Public in and for the State of Washington ¹⁶
Residing at _____
My appointment expires _____

REPRESENTATIVE ACKNOWLEDGEMENTSTATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** signed this instrument, on oath stated that **he/she** was authorized to execute this instrument, and acknowledged it as the _____ [TYPE OF AUTHORITY] of _____ [NAME OF PARTY BEING REPRESENTED] to be the free and voluntary act and deed of such party for the uses and purposes mentioned in the instrument.

Notary Public in and for the State of Washington ¹⁶
Residing at _____
My appointment expires _____

¹¹ Where landowner is located out of state, replace with appropriate out-of-state title and location.

APPENDIX 1

EXAMPLE SITE-SPECIFIC COVENANT PROVISIONS**a. Land Use.** ¹²

Option 1 Industrial Land Use: The remedial action for the Property is based on a cleanup designed for industrial property. As such, the Property shall be used in perpetuity only for industrial uses, as that term is defined in the rules promulgated under Chapter 70.105D RCW. Prohibited uses on the Property include but are not limited to residential uses, childcare facilities, K-12 public or private schools, parks, grazing of animals, growing of food crops, and non-industrial commercial uses.

Option 2 Commercial Land Use: The remedial action for the Property is based on a cleanup designed for commercial property. As such, the Property shall be used in perpetuity only for commercial land uses as that term is defined in the rules promulgated under Chapter 70.105D RCW. Prohibited uses on the Property include but are not limited to residential uses, childcare facilities, K-12 public or private schools, parks, grazing of animals, and growing of food crops.

Option 3 Park: The remedial action for the Property is based on a cleanup designed for a public park. As such, the Property shall be used in perpetuity only for a public park. Prohibited uses on the Property include but are not limited to residential uses, childcare facilities, K-12 public or private schools, grazing of animals, and growing of food crops.

Option 4 [Specify other land use limitations as appropriate.]

b. Containment of Soil/Waste Materials. ¹³

[Use where contaminated soil or solid or hazardous waste remains on the property.]

The remedial action for the Property is based on containing contaminated soil **[and waste materials]** under a cap consisting of **[Insert a description of the cap]** ¹⁴ and located as illustrated in **[Exhibit B/C]** ¹⁵. The primary purpose of this cap is to **[Insert purpose of cap]**. ¹⁶ As such, the following restrictions shall apply within the area illustrated in **[Exhibit B/C]** ¹⁷:

Option 1 [Use where a cap is required.] Any activity on the Property that will compromise the integrity of the cap including: drilling; digging; piercing the cap with sampling device, post, stake or similar device; grading; excavation; installation of underground utilities; removal of the cap; or, application of loads in excess of the cap load bearing capacity, is prohibited without prior written approval by Ecology. The Grantor shall report to Ecology within forty-eight (48) hours of the discovery of any damage to the cap. Unless an alternative plan has been approved by Ecology in writing, the Grantor shall promptly repair the damage and submit a report documenting this work to Ecology within thirty (30) days of completing the repairs.

¹² Use one of these restrictions only if the underlying zoning allows the use.

¹³ Waste materials means solid wastes as defined in Chapter 70.95 RCW or hazardous wastes as defined in Chapter 70.105 RCW and the rules promulgated under these statutes.

¹⁴ Such as: an X foot thick layer of clean soil; an engineered cap consisting of X inches of clean soil overlying a X mil thick geomembrane and/or clay layer; asphalt pavement; an X square foot building, etc.]

¹⁵ Be very clear in describing or diagramming where the contamination is located relative to a legally defined benchmark such as a property line or survey monument; or use a legal description.

¹⁶ Such as: minimize the potential for contact with contaminated soil; minimize leaching of contaminants to groundwater and surface water; prevent runoff from contacting contaminated soil; minimize airborne contaminants. A cap may have multiple purposes.

¹⁷ NOTE: More than one exhibit may be necessary to illustrate the area restricted by this and other limitations.

Option 2 [Use when contamination is left behind under a building.]

The Grantor shall not alter or remove the existing structures on the Property in any manner that would expose contaminated soil [and waste materials], result in a release to the environment of contaminants, or create a new exposure pathway, without prior written approval of Ecology. Should the Grantor propose to remove all or a portion of the existing structures illustrated in [Exhibit B/C] so that access to the underlying contamination is feasible, Ecology may require treatment or removal of the underlying contaminated soil [and waste materials].

Option 3: [Use when periodic inspections of a cap/building are included.]

The Grantor covenants and agrees that it shall annually, or at another time as approved in writing by Ecology, inspect the [cap/building] and report within thirty (30) days of the inspection the condition of the [cap/building] and any changes to the [cap/building] that would impair its performance.

c. Stormwater facilities. [Use when infiltration needs to be controlled to minimize leaching from soil or waste materials, or spreading of groundwater contamination.]

To minimize the potential for mobilization of contaminants remaining in the [soil/waste materials/groundwater] on the Property, no stormwater infiltration facilities or ponds shall be constructed [on the Property] OR [within the area of the Property illustrated in Exhibit B/C]. All stormwater catch basins, conveyance systems, and other appurtenances located within this area shall be of water-tight construction.¹⁸

d. Vapor/gas controls. [Use when vapors and/or methane gas are a concern. An example of when this provision would be appropriate is if a soil cap or a groundwater conditional point of compliance are being used to address volatile contaminants remaining on the property.]

The residual contamination on the Property includes [volatile chemicals that may generate harmful vapors] and/or [biodegradable wastes/chemicals that may generate methane, a combustible gas]. As such, the following restrictions shall apply [on the Property] or [within the area of the Property illustrated in Exhibit B/C] to minimize the potential for exposure to these vapors:

1. No building or other enclosed structure shall be constructed [on the Property/within this area] unless approved by Ecology.
2. If a building or other enclosed structure is approved, it shall be constructed with a sealed foundation and a [vapor/gas] control system that is operated and maintained to prevent the migration of [vapors/gas] into the building or structure, unless an alternative approach is approved by Ecology.

e. Groundwater Use. [Use when groundwater use restrictions are required.]

The groundwater beneath [the Property] OR [within the area of the Property illustrated in Exhibit B/C] remains contaminated and shall not be extracted for any purpose other than temporary construction dewatering, investigation, monitoring or remediation. Drilling of a well for any water supply purpose is strictly prohibited. Groundwater extracted [from the

¹⁸ NOTE: Most local ordinances require on-site infiltration of runoff. If redevelopment of the Property is anticipated, the cleanup plan should reserve an area for this infiltration to occur without exacerbating leaching of residual soil contamination or enhancing movement of contaminants within the groundwater.

Property/within this area for any purpose shall be considered potentially contaminated and any discharge of this water shall be done in accordance with state and federal law.

f. Sediments. [Use for sediment cleanup sites.] ¹⁹

The residual contamination on the Property includes contaminated sediments. As such, the following restrictions shall apply to minimize potential disturbance of these sediments **[on the Property] OR [within the area of the Property illustrated in Exhibit B/C]**:

Option 1 [Use where a cap is required.] Any activity **[on the Property/within this area]** that will compromise the integrity of the cap including: drilling; digging; piercing the cap with sampling device, post, stake or similar device; excavation; installation of buried utilities; removal of the cap; or, application of loads in excess of the cap load bearing capacity, is prohibited without prior written approval by Ecology. The Grantor shall report to Ecology within forty-eight (48) hours of the discovery of any damage to the cap. Unless an alternative plan has been approved by Ecology in writing, the Grantor shall promptly repair the damage and submit a report documenting this work to Ecology within thirty (30) days of completing the repairs.

Option 2 No docks or other structures shall be constructed **[on the Property/within this area]** without prior written approval of Ecology.

Option 3 No dredging shall be allowed **[on the Property/within this area]** without prior written approval of Ecology.

Option 4 No ships or boats shall be allowed to anchor or use side thrusters **[on the Property/within this area]**. A no wake zone shall be enforced and ships and boats shall be limited to a draft depth of **[XX]** feet **[on the Property/within this area]**.

Option 5 No digging for clams, setting of crab pots or fishing nets, anchoring of mooring buoys or channel markers, or similar activities that could disturb the surface of the sediment shall be allowed **[on the Property/within this area]** without prior written approval of Ecology.

g. Monitoring. [Use for long-term protection of monitoring devices.]

Several **[groundwater monitoring wells, vapor probes, etc.]** are located on the Property to monitor the performance of the remedial action. The Grantor shall maintain clear access to these devices and protect them from damage. The Grantor shall report to Ecology within forty-eight (48) hours of the discovery of any damage to any monitoring device. Unless Ecology approves of an alternative plan in writing, the Grantor shall promptly repair the damage and submit a report documenting this work to Ecology within thirty (30) days of completing the repairs.

h. Other.

[Add other property-specific use or activity restrictions and affirmative obligations that are necessary but not identified above. Examples include special remedy-specific requirements such as restrictions on structures over leachate/groundwater collection systems, or protection requirements for cut-off walls or sheet piling.]

¹⁹ NOTE: Sediment restrictions are currently evolving. Additional guidance can be found in Ecology's Sediment Cleanup Users Manual II (SCUM II), Publication No. 12-09-057, located at: <https://fortress.wa.gov/ecy/publications/SummaryPages/1209057.html>

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