

CONSTRUCTION COMPLETION REPORT

River Terrace Crossing Area 10
Southwest of SW Hawk Ridge Road and SW 150th Avenue
Tigard, Oregon
ECSI Site No. 6156

For
Oregon Department of Environmental Quality
On behalf of Taylor Morrison (Formerly Polygon Northwest Company)
July 21, 2020

GeoDesign Project: Polygon-145-07



July 21, 2020

Oregon Department of Environmental Quality
Northwest Region
700 NE Multnomah Street, Suite 600
Portland, OR 97232

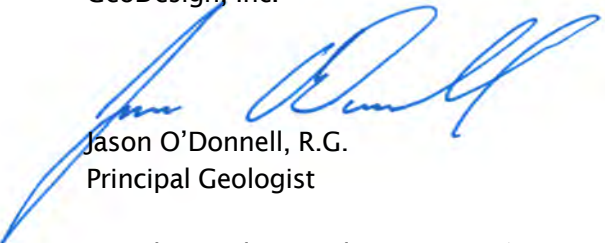
Attention: Kevin Dana

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Tigard, Oregon
ECSI Site No. 6156
GeoDesign Project: Polygon-145-07

GeoDesign, Inc. is pleased to submit this Construction Completion Report for the River Terrace Crossing Area 10 site. The project site is located southwest of the intersection of SW Hawk Ridge Road and SW 150th Avenue in Tigard, Oregon. This report summarizes the results of the previous investigative work pertaining to the project site (DEQ ECSI File No. 6156), decommissioning of USTs, and earthwork activities within the context of previously documented impacts to soil and related conditions set forth in the DEQ-approved CMMP for the project site dated March 30, 2017.

Sincerely,

GeoDesign, Inc.



Jason O'Donnell, R.G.
Principal Geologist

cc: Chris Walter, Taylor Morrison (via email only)

ADD:SCN:KRS:JSO:kt

Attachments

One copy submitted (via email only)

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ACRONYMS AND ABBREVIATIONS

AOC	area of concern
AST	aboveground storage tank
BGS	below ground surface
CFSL	Clean Fill Screening Level
CMMP	Contaminated Media Management Plan
COC	chemical of concern or contaminate of concern
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DEQ	Oregon Department of Environmental Quality
ECSI	Environmental Cleanup Site Information
EDB	dibromomethane
EDC	dichloromethane
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
HOT	heating oil tank
ICP-MS	inductively coupled plasma mass spectrometry
I.D.	identification
LUST	Leaking Underground Storage Tank
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MSL	mean sea level
MTBE	methyl tertiary butyl ether
NE	not established
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
RBC	risk-based concentration
RBDM	<i>Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites</i>
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental condition
TCE	trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TMB	trimethylbenzene
UCL	upper confidence limit
µg/m ³	micrograms per cubic meter
UST	underground storage tank
VOC	volatile organic compound

1.0 INTRODUCTION

This Construction Completion Report has been prepared by GeoDesign, Inc. on behalf of Taylor Morrison (formerly Polygon Northwest Company) for the River Terrace Crossing Area 10 development site. The River Terrace Crossing Area 10 development site is located southwest of the intersection of SW Hawk Ridge Road and SW 150th Avenue in Tigard, Oregon (project site). The project site was entered into the DEQ ECSI database (and assigned ECSI Site No. 6156) in November 2016 due to the project site's past pesticide storage and application practices and leaking fuel storage tanks.

This report summarizes (1) the earthwork activities conducted at the project site during redevelopment activities within the context of previously documented impacts to soil and related conditions set forth in the DEQ-approved CMMP for the project site (2) measures employed during the decommissioning of USTs, septic systems, and water supply wells, and (3) the mitigative components employed concurrently with the construction activities to minimize risk to human health and the environment.

The project site encompasses a total of 45.56 acres. For the purpose of this report, the northern approximate 10 acres of the project site (former Tax Lots 100 and 200) are referenced herein as the "northern" parcels of the project site and the southern approximate 35 acres of the project site (former Tax Lots 1400, 1401, 1402, 1403, 1404, and 1405) are referenced herein as the "southern" parcels of the project site. The project site is shown relative to surrounding physical features on Figure 1. A site plan showing the pre-development layout of the project site is shown on Figure 2. Acronyms and abbreviations used herein are defined above, immediately following the Table of Contents.

2.0 PROJECT SITE DESCRIPTION

2.1 GENERAL

The project site is located in the southwest quarter of the southeast quarter of Section 8, Township 2 South, Range 1 West of the Willamette Meridian. The project site is bound to the east by SW 150th Avenue, to the west and south by residential and agricultural properties, and to the north by SW Hawk Ridge Road, across which is the Polygon at Bull Mountain residential development. An unnamed tributary of the Tualatin River (referenced herein as "creek") transects the approximate central portion of the project site from north to south, with the creek flowing toward the south. Based on the results of GeoDesign's 2016 geotechnical investigation and a review of topographic maps for the area, shallow groundwater beneath the project site is expected to perch on top of shallow basalt (ranging in depth between approximately 6 feet BGS near the north portion of the project site to depths greater than 17 feet BGS near the west and east boundaries of the project site) and flow toward the creek. The project site generally slopes to the south. Prior to redevelopment, the maximum elevation at the northwest corner of the project site was approximately 430 feet above MSL and the minimum elevation at the south boundary of the project site was approximately 280 feet above MSL.

2.2 HISTORICAL LAND USE

Our review of historical sources (beginning in 1916) and interviews with former landowners (in 2016) revealed that the northern parcels first appeared as vacant or agricultural land in 1916. From at least 1934 through 2012 portions of the northern parcels were used for agricultural purposes, including orchards and row crops. The southern parcels were used for farming sometime prior to 1900. The west portion of the southern parcels has remained undeveloped forested land until it was logged sometime prior to 1970. Former Tax Lot 100 (northern parcel) was developed with a residence and pole barn in 1979. Former Tax Lot 200 (northern parcel) was developed with a residence in 1989 and a detached garage sometime between 2005 and 2012. Former Tax Lot 1400 (southern parcel) was developed with a residence and outbuilding by at least 1916. Former Tax Lots 1401, 1402, and 1404 (southern parcels) were developed for residential use between at least 1980 and 1987. Former Tax Lot 1403 (southern parcel) remained undeveloped. The former residential addresses associated with the former tax lots at the project site are as follows:

Former Tax Lot	Address	Area
100	15445 SW 150 th Avenue	Northern parcels
200	15475 SW 150 th Avenue	Northern parcels
1400	15685 SW 150 th Avenue	Southern parcels
1401	15515 SW 150 th Avenue	Southern parcels
1402	15745 SW 150 th Avenue	Southern parcels
1403	No address	Southern parcels
1404	15915 SW 150 th Avenue	Southern parcels

The pre-development topography, boundaries of the former tax lots, and the locations of the former residential structures and outbuildings are shown on Figure 2.

Land use in the vicinity of the project site is primarily residential and agricultural. According to the City of Tigard Community Development Department, the project site is zoned Medium-Density Residential (R-7). Properties north and west of the project site within the city of Tigard are zoned Low-Density Residential (R-4.5) and Medium-Density Residential (R-7). According to the Washington County Land Use & Transportation Department, properties south and east of the project site within Washington County are zoned Residential 6 Units Per Acre (R-6) and Exclusive Farm Use (EFU).

2.3 PROJECT SITE REDEVELOPMENT

The project site was acquired for redevelopment by Polygon Northwest Company by 2016 (known now as Taylor Morrison). The project site is currently an active construction site for the continued development of numerous residential lots, roadways, greenspaces, and a park. Redevelopment plans preserve the creek and portions of the associated vegetated corridor that transects the project site from north to south. Final development will consist primarily of hardscape caps, including roadways, parking areas, sidewalks, and residential structures. Greenspace and/or park areas are planned in the southwest corner of the project site. The current proposed development includes 198 residential lots, 2.21 acres of public parks and

trails, and 13.25 acres of open space. The proposed redevelopment is shown on Figure 3. Minor adjustments to tax lot boundaries are currently being evaluated by the project team.

Redevelopment to date has included the demolition of the former project site structures and excavation and grading to accommodate utility infrastructure as well as the new roads and the future residences. A stormwater facility has been constructed at the southwest corner of the project site. In addition, an internment disposal cell containing contaminated soil with a minimum 3-foot-thick clean soil cap has been constructed just north of the stormwater facility. Cuts and fills were adjusted to reduce potential rock excavation at the project site; however, cuts of up to approximately 15 feet have been completed for the stormwater facility and fill of up to approximately 15 feet thick has been placed for a culvert crossing over the creek. Ultimately, fill up to approximately 25 feet thick will be placed in the vicinity of the culvert crossing over the creek.

The maximum post-grading elevation at the northeast corner of the project site is approximately 462 feet above MSL and the minimum post-grading elevation in the south portion of the project site, near the south end of the creek and associated catchment area, is approximately 300 feet above MSL. The current topography, boundaries of the former tax lots, and locations of the stormwater facility and internment disposal cell are shown on Figure 4. Although construction excavation is ongoing to support development, excavation in contaminated areas and on-site management of pesticide-contaminated soil is complete.

3.0 REGULATORY SCREENING LEVELS

Although a formal conceptual site model and a Level I Ecological Risk Assessment were not prepared for the project site, the following sections present the applicable DEQ regulatory screening levels for soil and sediment based on our understanding of the planned redevelopment and the analytical results of the historical investigations (discussed in Section 4.0).

3.1 DEQ RBCs

DEQ has established generic RBCs for various contaminants, exposure pathways, and receptors to evaluate risk to human health and the environment. Based on our understanding of the planned redevelopment, the following exposure pathways and receptors are considered complete at the project site:

- *Soil Ingestion, Dermal Contact, and Inhalation:* residential, construction worker, and excavation worker receptors
- *Volatilization to Outdoor Air:* residential receptors
- *Vapor Intrusion into Buildings:* residential receptors

The RBCs associated with the above exposure pathways and receptors that were used to compare previous soil and sediment chemical analytical results to are referred herein as the “applicable DEQ RBCs.”

The DEQ *Leaching to Groundwater* RBCs are not used for comparison purposes as the *Leaching to Groundwater* exposure pathway is not considered complete based on the following:

- The City of Tigard will provide future potable water to the project site (and does so currently to the surrounding properties).
- Site redevelopment activities included the proper decommissioning of the former residential water supply wells (as described in Section 5.1.4).
- Future water supply wells are not planned at the project site.

Soil, sediment, and soil gas chemical analytical results are compared to DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBCs for residential, construction worker, and excavation worker receptors and to DEQ *Volatilization to Outdoor Air and Vapor Intrusion into Buildings* RBCs for residential receptors in Tables 1 through 9.

3.2 DEQ CFSLS

DEQ has published an internal management directive, which includes CFSLS¹, to use as guidance when evaluating disposal options for soil with low levels of contamination. Soil that does not visually appear contaminated and/or contains contamination at levels less than the DEQ CFSLS can be re-used on site or disposed of offsite without restrictions. Excavation spoils would not meet DEQ's definition of "clean fill" if physical evidence of contamination is observed or chemical constituents are present at concentrations exceeding DEQ CFSLS. To facilitate characterization of soil for disposal purposes, soil chemical analytical results were also compared to established DEQ CFSLS. Soil and sediment chemical analytical results are compared to DEQ CFSLS in Tables 1 through 8.

4.0 BACKGROUND

4.1 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

Previous environmental investigations summarized in the sections below are based on our review of the following reports:

- *Environmental Services Report; River Terrace Area 10; 15515, 15685, 15745, and 15915 SW 150th Avenue; Tigard, Oregon*, prepared by GeoDesign, Inc., dated November 2, 2016
- *Phase I Environmental Site Assessment and Limited Surface Soil Evaluation; Northern Parcels – River Terrace Area 10; 15445 – 15475 SW 150th Avenue; Tigard, Oregon*, prepared by GeoDesign, Inc., dated November 7, 2016
- *Contaminated Media Management Plan; River Terrace Area 10; 15515, 15685, 15745, and 15915 SW 150th Avenue; Tigard, Oregon*, prepared by GeoDesign, Inc., dated March 30, 2017
- *Phase I Environmental Site Assessment Update; Northern Parcels – River Terrace Area 10; 15445 – 15475 SW 150th Avenue; Tigard, Oregon*, prepared by GeoDesign, Inc., dated September 8, 2017

¹ DEQ's Internal Management Directive titled *Clean Fill Determinations*, updated February 21, 2019

In addition to the previous environmental activities described in the reports listed above, GeoDesign also conducted a geotechnical investigation of the project site in October and November 2016. The geotechnical subsurface investigation included drilling 4 borings to depths between 25.5 and 26 feet BGS and excavating 22 test pits to depths between 8 and 17 feet BGS at various locations across the project site. During the geotechnical exploration activities, field evidence of contamination or suspected contamination was not observed. The locations of the geotechnical explorations are shown on Figure 2.

A summary of the findings and conclusions of the above-referenced environmental reports are presented in the following sections, as follows: Section 4.1.1 summarizes the environmental services conducted on the southern parcels of the project site, Section 4.1.2 summarizes the environmental services conducted on the northern parcels of the project site, Section 4.1.3 summarizes the CMMP, and Section 4.1.4 presents the findings of the Phase I ESA Update.

4.1.1 Environmental Services (Southern Parcels, 2016)

GeoDesign performed a Phase I ESA, a limited surface soil evaluation, and a limited subsurface evaluation of the southern parcels of the project site in September and October 2016. The results of these environmental services are presented in our November 2, 2016 report and are briefly summarized in the following sections.

4.1.1.1 Phase I ESA (Southern Parcels, 2016)

The results of the Phase I ESA identified the following seven RECs at the southern parcels of the project site:

- REC No. 1: Agricultural use from at least 1900 through 2016 on former Tax Lots 1400, 1401, 1402, 1403, and 1404
- REC No. 2: A gasoline UST on former Tax Lot 1400 (Figure 2)
- REC No. 3: One HOT on Tax Lot 1400 and one HOT on Tax Lot 1401 (Figure 2)
- REC No. 4: Three drum storage areas, one located on former Tax Lot 1400 and two located on Tax Lot 1402 (Figure 2)
- REC No. 5: Three tractor and maintenance sheds with gravel floors on former Tax Lot 1400 (Figure 2)
- REC No. 6: Two ASTs, one on former Tax Lot 1400 and one on former Tax Lot 1402 (Figure 2)
- REC No. 7: Two AST fueling areas, one on former Tax Lot 1400 and one on former Tax Lot 1402 (Figure 2)

In addition to the RECs identified above, the following non-RECs were observed on the project site:

- One septic system was observed at former Tax Lot 1401 (Figure 2). The Phase I ESA recommended that this septic system, as well as any other septic systems encountered during redevelopment, be properly abandoned in accordance with state and local regulations. If chemical or hazardous material disposal is evident in the septic systems, GeoDesign recommended collecting soil samples from beneath the septic systems for chemical analysis.
- Water supply wells located on former Tax lots 1400, 1401, 1402, and 1404 (Figure 2). The Phase I ESA recommended that the water supply wells be properly abandoned in accordance with state and local regulations.
- The solid waste observed throughout the project site (garbage) was recommended to be collected and properly disposed of prior to site redevelopment. GeoDesign recommended hazardous materials, if encountered, be segregated, characterized, and disposed of in accordance with state and federal regulations.

The Phase I ESA recommended preparing a Soil Management Plan prior to redevelopment to assist the earthwork contractor on the proper identification, handling, stockpiling, and disposal of petroleum-contaminated soil.

4.1.1.2 Limited Surface Soil Evaluation of REC No. 1 (Southern Parcels, 2016)

In September and October 2016 GeoDesign conducted a limited surface soil evaluation of the southern parcels of the project site to evaluate potential impacts to surface soil from past agricultural use. The surface soil evaluation was conducted in general accordance with DEQ's *Guidance for Evaluating Residual Pesticides on Lands Formerly Used for Agricultural Production*, dated January 2006 (updated June 2019).

Field activities in the former agricultural areas included collecting the following sediment and surface soil samples:

- One three-point composite sediment sample [SED-1(0.0-0.5)] from the bank of the creek in the central portion of the project site
- Eight discrete sediment samples [SED-2(0.0-0.5 through SED-9(0.0-0.5)] from the bank of the creek within the southern parcels of the project site
- Eighteen 4-point composite shallow surface soil samples [Comp-1(0.0-0.5) through Comp-9(0.0-0.5) and Comp-1(0.25-0.5) through Comp-9(0.25-0.5)] throughout the former agricultural areas of the project site
- Nine 4-point composite deeper surface soil samples [Comp-1(1.5-2.0) through Comp-9(1.5-2.0)] throughout the former agricultural areas of the project site

The above shallow and deep surface soil samples were submitted to Apex Laboratories (Apex) of Tigard, Oregon, for analysis of organochlorine pesticides by EPA Method 8181B and 17 total metals by EPA Method 6020A. The agricultural composite soil sampling areas and sediment sample locations are shown on Figure 5. The chemical analytical results for the composite surface soil and sediment samples are presented in Tables 1 and 2 and briefly discussed below.

Sediment

In October 2016 one three-point composite sediment sample [SED-1(0.0-0.5)] was collected from the bank of the creek in the central portion of the southern parcels of the project site. In November 2016 DEQ requested further evaluation of sediment in the creek for the presence of organochlorine pesticides and agricultural-use metals. Eight additional discrete samples [SED-2(0.0-0.5) through SED-9(0.0-0.5)] were collected from the sediment in the creek in November 2016. The chemical analytical results for the sediment samples are presented in Tables 1 and 2 and briefly discussed below.

- The pesticide dieldrin was detected in sediment samples SED-1(0.0-0.5) and SED-8(0.0-0.5) at concentrations less than applicable DEQ RBCs but greater than the DEQ CFSL. Pesticides were otherwise not detected or were detected at concentrations less than the applicable screening levels.
- Metals were detected in the sediment samples at concentrations less than applicable screening levels.

The results of the composite and discrete sediment sampling indicated that sediment in the creek that transects the project site within the southern parcels did not contain pesticides or metals at concentrations greater than the applicable DEQ screening levels.

Shallow Surface Soil

In September and October 2016 eighteen 4-point composite shallow surface soil samples [Comp-1(0.0-0.5) through Comp-9(0.0-0.5) and Comp-1(0.25-0.5) through Comp-9(0.25-0.5)] were collected throughout the former agricultural areas within the southern parcels of the project site to evaluate the shallow soil conditions. The shallow soil samples were submitted for analysis of organochlorine pesticides by EPA Method 8081B. Shallow soil samples Comp-1(0.0-0.5) through Comp-9(0.0-0.5) were also submitted for analysis of 17 total metals by EPA Method 6020A. The chemical analytical results for the shallow soil samples are presented in Tables 1 and 2 and briefly discussed below.

- The pesticide dieldrin was detected in the shallow surface soil samples at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors [with the exception of samples Comp-8(0.0-0.5) and Comp-8(0.25-0.5)] and the DEQ CFSL [with the exception of samples Comp-8(0.0-0.5), Comp-4(0.25-0.5), and Comp-8(0.25-0.5)]. Dieldrin was detected in shallow surface soil sample Comp-4(0.25-0.5) at a concentration greater than the DEQ CFSL. Dieldrin was not detected in samples Comp-8(0.0-0.5) and Comp-8(0.25-0.5).
- The pesticide 4,4'-DDT was detected in the shallow surface soil samples at concentrations less than the applicable DEQ RBC, but greater than the DEQ CFSL [with the exception of samples Comp-8(0.0-0.5), Comp-1(0.25-0.5), Comp-2(0.25-0.5), and Comp-8(0.25-0.5)]. The pesticide 4,4'-DDT was not detected in samples Comp-8(0.0-0.5), Comp-1(0.25-0.5), Comp-2(0.25-0.5), and Comp-8(0.25-0.5).

- The pesticide 4,4-DDE was detected in the shallow surface soil samples at concentrations less than the applicable DEQ RBC, but greater than the DEQ CFSL [with the exception of samples Comp-8(0.0-0.5), Comp-1(0.25-0.5), and Comp-8(0.25-0.5)]. The pesticide 4,4'-DDE was either not detected or was detected at concentrations less than applicable DEQ screening levels in samples Comp-8(0.0-0.5), Comp-1(0.25-0.5), and Comp-8(0.25-0.5).
- The pesticide lindane was detected in sample Comp-1(0.25-0.5) at a concentration less than the applicable DEQ RBCs but greater than the DEQ CFSL. Lindane was either not detected or was detected at concentrations less than the applicable DEQ screening levels in the remaining samples submitted for analysis.
- Other pesticides were either not detected or were detected at concentrations less than the applicable screening levels in the remaining samples submitted for analysis.
- Up to 12 metals were detected in shallow composite samples Comp-1(0.0-0.5) through Comp-9(0.0-0.5) at concentrations less than the applicable DEQ screening levels.

The chemical analytical results indicate that pesticides and heavy metals were present in the shallow surface soil (up to 0.5 foot BGS) within the former agricultural areas on the east portions of the southern parcels (within composite sampling areas Comp-1 through Comp-7 and/or Comp-9). However, the only COC (a contaminant with a detected concentration exceeding an applicable RBC) identified in the surface soil (up to 0.5 foot BGS) in the southern parcels related to the historical agricultural use was dieldrin (collected in all of the composite sampling areas except Comp-8). The shallow pesticide-contaminated soil was managed in accordance with the DEQ-approved CMMP and as described in Section 5.2.1.

Deeper Surface Soil

In October 2016 nine 4-point composite deeper surface soil samples [Comp-1(1.5-2.0) through Comp-9(1.5-2.0)] were collected throughout the former agricultural areas of the project site to evaluate the deeper surface soil conditions. The deeper surface soil samples were submitted for analysis of organochlorine pesticides by EPA Method 8081B. The chemical analytical results for the deeper surface soil samples are presented in Table 1 and briefly discussed below

- The pesticide dieldrin was detected in deeper surface soil sample Comp-6(1.5-2.0) at a concentration greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors and the DEQ CFSL. Dieldrin was detected in deeper surface soil samples Comp-3(1.5-2.0), Comp-4(1.5-2.0), and Comp-7(1.5-2.0) at concentrations less than the applicable DEQ RBCs but greater than the DEQ CFSL. Dieldrin was either not detected or was detected at concentrations less than the applicable DEQ screening levels in the remaining samples submitted for analysis.
- The pesticides 4,4'-DDE and 4,4'-DDT were detected in deeper surface soil samples Comp-4(1.5-2.0), Comp-6(1.5-2.0), and Comp-7(1.5-2.0) at concentrations less than the applicable DEQ RBCs but greater than the DEQ CFSLs. The pesticides 4,4'-DDE and 4,4'-DDT were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the remaining samples submitted for analysis.
- Other pesticides were either not detected or were detected at concentrations less than the applicable screening levels.

The chemical analytical results indicated that deeper surface soil at depths generally between 1.5 and 2 feet BGS contained significantly lower concentrations of pesticides. The only COC identified in the deeper composite surface soil samples (between 1.5 and 2 feet BGS) in the southern parcels related to the historical agricultural use was dieldrin (collected in sample Comp-6(1.5-2.0) from composite sampling area Comp-6). However, based on the calculated 90% UCL concentration of dieldrin (0.0192 mg/kg) in the deeper soil samples, it is GeoDesign's opinion that the dieldrin concentrations in the deeper soil (greater than 1.5 feet BGS) did not necessitate the need for the deeper soil to be managed as solid waste and does not pose an unacceptable risk to human health or the environment at the project site. Nonetheless, some pesticide-contaminated deeper soil was removed and placed within the on-site internment disposal cell as further described in Section 5.2.1.

4.1.1.3 Limited Soil Evaluation of RECs Nos. 2 through 7 (Southern Parcels, 2016)

In September and October 2016 GeoDesign conducted a limited soil evaluation of the southern parcels of the project site to evaluate potential impacts to surface and subsurface soil associated with RECs Nos. 2 through 7. A geophysical survey was conducted at the project site in the vicinities of the gasoline UST and HOTs on former Tax Lots 1400 and 1401. Field activities conducted to investigate the surface and/or subsurface soil associated with RECs Nos. 2 through 7 included collecting surface and/or subsurface soil samples from the following explorations:

- REC No. 2: three direct-push borings (DP-3, DP-4, and DP-9) in the vicinity of the gasoline UST located on former Tax Lot 1400
- REC No. 3: three direct-push borings (DP-1, DP-2, and DP-8) in the vicinity of the HOT located on former Tax Lot 1400 and two hand auger borings (HA-1 and HA-2) in the vicinity of the HOT on former Tax Lot 1401
- REC No. 4: test pit composite sample TPComp-3 within the drum storage area located on former Tax Lot 1400 and two test pit composite areas (TPComp-1 and TPComp-2) within the drum storage areas located on former Tax Lot 1402
- REC No. 5: three direct-push borings (DP-5, DP-6, and DP-7) in the three tractor and maintenance sheds with gravel floors on former Tax Lot 1400
- REC No. 6: two test pits (TP-4 and TP-1) beneath the ASTs located on former Tax Lots 1400 and 1402, respectively
- REC No. 7: two test pits (TP-3 and TP-2) within the AST fueling areas located on former Tax Lots 1400 and 1402, respectively

The soil samples collected from the above explorations were submitted to Apex for one or more of the following chemical analysis:

- Organochlorine pesticides by EPA Method 8181B
- 17 total metals by EPA Method 6020A
- TCLP lead by EPA Method 1311/6020
- Gasoline-range hydrocarbons by Method NWTPH-Gx
- Diesel- and oil-range hydrocarbons by Method NWTPH-Dx
- PAHs by EPA Method 8270D-SIM
- VOCs by EPA Method 8260B
- PCBs by EPA Method 8082A

The direct-push boring, test pit, test pit composite, and hand auger boring exploration locations are shown on Figure 6. The chemical analytical results for the samples collected from these explorations are presented in Tables 1 through 6. The results of the geophysical survey and the chemical analytical results are briefly described below

Geophysical Survey

The results of the geophysical survey indicated that an approximately 1,000-gallon UST was present at the auto storage/service shop on former Tax Lot 1400, an approximately 675-gallon HOT was present northwest of the residence on former Tax Lot 1400, and an approximately 675-gallon HOT was present east of the residence located on former Tax Lot 1401 (Figures 2 and 6). No other USTs were identified during the geophysical survey. A map prepared by Pacific Geophysics showing the locations of the 1,000-gallon gasoline UST and the HOT on Tax Lot 1400 is presented in Appendix A.

Gasoline UST on Former Tax Lot 1400

In October 2016 three direct-push borings (DP-3, DP-4, and DP-9) were advanced in the vicinity of the gasoline UST to evaluate soil conditions. Soil samples collected from the direct-push borings were submitted for analysis of total lead by EPA Method 6020A, gasoline-range hydrocarbons by Method NWTPH-Gx, and VOCs by EPA Method 8260B. The chemical analytical results for soil samples are presented in Tables 2 through 5 and are briefly discussed below.

- Lead was not detected at concentrations greater than applicable DEQ screening levels.
- Gasoline-range hydrocarbons were detected in soil sample DP-3(10.5-12.5) at a concentration greater than the DEQ *Vapor Intrusion into Buildings* RBC for residential receptors and the DEQ CFSL. Gasoline-range hydrocarbons were otherwise not detected.
- The VOC ethylbenzene was detected in sample DP-3(10.5-12.5) at a concentration slightly greater than the DEQ *Vapor Intrusion into Buildings* RBC for residential receptors and the DEQ CFSL. Ethylbenzene was not detected in the remaining samples submitted for analysis.
- The VOC 1,2,4-TMB was detected in sample DP-3(10.5-12.5) at a concentration less than the applicable DEQ RBCs but greater than the DEQ CFSL. The VOC 1,2,4-TMB was not detected in the remaining samples submitted for analysis.
- Other VOCs were either not detected or were detected at concentrations less than the applicable RBCs in the samples submitted for analysis.

Based on the chemical analytical results, gasoline- and ethylbenzene-contaminated soil was present at depths up to 12.5 feet BGS in the vicinity of the gasoline UST located in the auto service/storage shop on former Tax Lot 1400 (formerly located at 15685 SW 150th Avenue) at concentrations greater than the DEQ *Vapor Intrusion into Buildings* RBC for residential receptors. The contaminated soil in the vicinity of the gasoline UST was managed in accordance with the DEQ-approved CMMP and as described in Section 5.2.3.

HOT on Former Tax Lot 1400

In October 2016 three direct-push borings (DP-1, DP-2, and DP-8) were advanced in the vicinity of the HOT on former Tax Lot 1400 to evaluate soil conditions. The soil samples were submitted

for analysis of diesel- and oil-range hydrocarbons by Method NWTPH-Dx and PAHs by EPA Method 8270D-SIM. The chemical analytical results for soil samples are presented in Tables 3 and 4 and are briefly discussed below.

- Diesel-range hydrocarbons were detected in soil samples DP-1(10.0-11.0), DP-1(11.0-12.0), DP-2(1.0-2.0), and DP-2(11.5-12.5) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors and the DEQ CFSL. In addition, the diesel-range hydrocarbons detected in sample DP-2(1.0-2.0) were greater the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for construction workers. Diesel-range hydrocarbons were not detected in the remaining samples submitted for analysis.
- Oil-range hydrocarbons were not detected in the samples submitted for analysis.
- The PAHs dibenzofuran, 1-methylnaphthalene, and naphthalene were detected in samples DP-1(10.0-11.0), DP-1(11.0-12.0), DP-2(1.0-2.0), and/or DP-2(11.5-12.5) at concentrations less than the DEQ RBCs but greater than the DEQ CFSLs. The PAHs dibenzofuran, 1-methylnaphthalene, and naphthalene were not detected in the remaining samples submitted for analysis. Other PAHs were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the remaining samples submitted for analysis.

Based on the chemical analytical results, diesel-contaminated soil was present at depths up to 12.5 feet BGS in the vicinity of the HOT associated with the residence on former Tax Lot 1400 (formerly located at 15685 SW 150th Avenue) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential and excavation worker receptors. The diesel-contaminated soil in the vicinity of the HOT on former Tax Lot 1400 was managed in accordance with the DEQ-approved CMMP and as described in Section 5.1.1.

HOT on Former Tax Lot 1401

In October 2016 two hand-auger borings (HA-1 and HA-2) were advanced in the vicinity of the HOT on former Tax Lot 1401 to evaluate soil conditions. Soil samples collected from the hand auger borings were submitted for analysis of diesel- and oil-range hydrocarbons by Method NWTPH-Dx and PAHs by EPA Method 8270D-SIM. The chemical analytical results for soil samples are presented in Tables 3 and 4 and are briefly discussed below.

- Diesel-range hydrocarbons were detected in soil samples HA-1(6.5-8.0), HA-1(8.0-8.5), and HA-2(7.0-8.0) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBCs for residential and construction worker receptors and the DEQ CFSL. Diesel-range hydrocarbons were either not detected or were detected at concentrations less than applicable DEQ screening levels in the remaining samples submitted for analysis.
- Oil-range hydrocarbons were not detected in the samples submitted for analysis.
- The PAH naphthalene was detected in samples HA-1(8.0-8.5) and HA-2(7.0-8.0) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* and the *Vapor Intrusion into Buildings* RBCs for residential receptors and the DEQ CFSL. Naphthalene was detected in samples HA-1(6.5-8.0) and HA-2(8.25-8.75) at concentrations less than the applicable DEQ RBCs but greater than the DEQ CFSL. Naphthalene was not detected in sample HA-1(0.0-1.0).

- The PAHs dibenzofuran, 1-methylnaphthalene, and/or phenanthrene were detected in samples HA-1(6.5-8.0), HA-1(8.0-8.5), HA-2(7.0-8.0), and/or HA-2(8.25-8.75) at concentrations less than the DEQ RBCs but greater than the DEQ CFSLs. Dibenzofuran, 1-methylnaphthalene, and/or phenanthrene were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the remaining samples submitted for analysis. Other PAHs were either not detected or were detected at concentrations less than the applicable DEQ screening levels.

Based on the chemical analytical results, diesel- and naphthalene-contaminated soil was present at depths up to 8.5 feet BGS in the vicinity of the HOT associated with the residence on former Tax Lot 1401 (formerly located at 15515 SW 150th Avenue) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact and Inhalation* and the *Vapor Intrusion into Buildings* RBCs for residential and/or construction worker receptors. The diesel-contaminated soil in the vicinity of the HOT on former Tax Lot 1401 was managed in accordance with the DEQ-approved CMMP and as described in Section 5.1.2.

Drum Storage Area on Former Tax Lot 1400

In October 2016 two composite surface soil samples [TPComp-3(0.0-0.5) and TPComp-3(1.5-2.0)] were collected within the drum storage area on former Tax Lot 1400 to evaluate soil conditions. The soil samples were submitted for analysis of organochlorine pesticides by EPA Method 8081B, 17 total metals by EPA Method 6020A, TCLP lead by EPA Method 1311/6020, gasoline-range hydrocarbons by Method NWTPH-Gx, diesel- and oil-range hydrocarbons by Method NWTPH-Dx, VOCs by EPA Method 8260B, PAHs by EPA Method 8270D-SIM, and/or PCBs by EPA Method 8082A. The chemical analytical results for the soil samples are presented in Tables 1 through 6 and are briefly discussed below.

- The pesticide dieldrin was detected in composite soil sample TPComp-3(0.0-0.5) at a concentration greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors and the DEQ CFSL. Dieldrin was detected in composite soil sample TPComp-3(1.5-2.0) at a concentration greater than the DEQ CFSL.
- The pesticide aldrin was detected in the composite soil samples at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors and the DEQ CFSL.
- The pesticides 4,4'-DDE and 4,4'-DDT were detected in composite soil sample TPComp-3(0.0-0.5) at concentration greater than the DEQ CFSLs. The pesticides 4,4'-DDE and 4,4'-DDT were detected in sample TPComp-3(1.5-2.0) at a concentration less than the DEQ screening levels.
- Other pesticides were either not detected or were detected at concentrations less than the applicable screening levels in the samples submitted for analysis.
- Eleven metals were detected in the composite soil samples at concentrations less than the applicable DEQ screening levels, with the exception of lead in sample TPComp-3(0.0-0.5). Lead was detected in sample TPComp-3(0.0-0.5) at a concentration exceeding the DEQ CFSL and the EPA threshold value for disposal at a RCRA Subtitle D landfill. Therefore, this sample was also analyzed for TCLP lead. TCLP lead was detected at a concentration of 0.914 mg/L, which indicated suitability for disposal as non-hazardous waste.

- Gasoline-, diesel, and oil-range hydrocarbons and PCBs were either not detected or were detected at concentrations less than the applicable DEQ screening levels.
- The VOC naphthalene was detected in sample TPComp-3(0.0-0.5) at a concentration less than the applicable DEQ RBCs but greater than the DEQ CFSL. Other VOCs were not detected in sample TPComp-3(0.0-0.5).
- The PAH benzo(a)pyrene was detected in sample TPComp-3(0.0-0.5) at a concentration greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors and the DEQ CFSL.
- The PAH 1-methylnaphthalene was detected in sample TPComp-3(0.0-0.5) at a concentration less than the applicable DEQ RBCs but greater than the DEQ CFSL.
- Other PAHs were either not detected or were detected at concentrations less than applicable DEQ screening levels.

Based on the chemical analytical results, pesticide-contaminated soil (up to 2 feet BGS) and benzo(a)pyrene-contaminated soil (up to 0.5 foot BGS) were present in the vicinity of the drum storage area located on former Tax Lot 1400 (formerly located at 15685 SW 150th Avenue) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors. The pesticide- and benzo(a)pyrene-contaminated surface soil in the vicinity of the drum storage area on former Tax Lot 1400 was managed in accordance with the DEQ-approved CMMP and as described in Section 5.1.5.

Drum Storage Areas on Former Tax Lot 1402

In October 2016 three composite surface soil samples [TPComp-1(0.0-1.0), TPComp-2(0.0-0.5), and TPComp-2(1.5-2.0)] were collected within the drum storage area on former Tax Lot 1402 to evaluate soil conditions. The soil samples were submitted for analysis of organochlorine pesticides by EPA Method 8081B, RCRA 8 total metals by EPA Method 6020A, 17 total metals by EPA Method 6020A, gasoline-range hydrocarbons by Method NWTPH-Gx, diesel- and oil-range hydrocarbons by Method NWTPH-Dx, VOCs by EPA Method 8260B, PAHs by EPA Method 8270D-SIM, and/or PCBs by EPA Method 8082A. The chemical analytical results for the soil samples are presented in Tables 1 through 6 and are briefly discussed below.

- The pesticide dieldrin was detected in composite soil sample TPComp-2(0.0-0.5) at a concentration greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors and the DEQ CFSL. Dieldrin was not detected in the remaining composite samples submitted for analysis.
- The pesticides 4,4'-DDE and 4,4'-DDT were detected in composite soil sample TPComp-2(0.0-0.5) at concentrations less than the DEQ applicable RBCs but greater than the DEQ CFSL. The pesticides 4,4'-DDE and 4,4'-DDT were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the remaining composite samples submitted for analysis.
- Other pesticides were either not detected or were detected at concentrations less than the applicable screening levels.
- Arsenic was detected in composite sample TPComp-1(0.0-1.0) at a concentration (11.9 mg/kg) greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors and the DEQ CFSL (the DEQ-established background concentration of 8.8 mg/kg). However, based on the calculated 90% UCL concentration of arsenic

(8.101 mg/kg) in the composite samples collected from the drum storage areas, it is GeoDesign's opinion that the arsenic concentrations did not necessitate the need to the soil to be managed as solid waste and does not pose an unacceptable risk to future users of the project site.

- Lead was detected in composite sample TPComp-1(0.0-1.0) at a concentration less than the applicable DEQ RBCs but greater than the DEQ CFSL. Metals were otherwise either not detected or were detected at concentrations less than the applicable screening levels.
- Gasoline-, diesel-, and oil-range hydrocarbons; VOCs; and PCBs were either not detected or were detected at concentrations less than applicable DEQ screening levels.
- The PAH naphthalene was detected in sample TPComp-1(0.0-0.5) at a concentration less than the applicable DEQ RBCs but greater than the DEQ CFSL. PAHs were otherwise not detected or were detected at concentrations less than applicable DEQ screening levels.

Based on the chemical analytical results, dieldrin-contaminated surface soil (up to 0.5 foot BGS) was present in the vicinity of the drum storage area located on former Tax Lot 1402 (formerly located at 15745 SW 150th Avenue) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBCs for residential receptors. The pesticide-contaminated surface soil in the vicinity of the drum storage area on former Tax Lot 1402 was managed in accordance with the DEQ-approved CMMP and as described in Section 5.1.5.

AST on Former Tax Lot 1400

In October 2016 two discrete soil samples [TP-4N(0.0-0.5) and TP-4S(0.0-0.5)] were collected beneath the AST on former Tax Lot 1400 to evaluate soil conditions. The soil samples were submitted for analysis of diesel- and oil-range hydrocarbons by Method NWTPH-Dx and PAHs by EPA Method 8270D-SIM. The chemical analytical results for the soil samples are presented in Tables 3 and 4 and are briefly discussed below.

- Diesel- and oil-range hydrocarbons were either not detected or were detected at concentrations less than the applicable DEQ screening levels.
- PAHs were not detected in the samples submitted for analysis.

Based on the chemical analytical results, diesel- and oil-range hydrocarbons and PAHs were not present in the surface soil beneath the AST on former Tax Lot 1400 (formerly located at 15685 SW 150th Avenue) at concentrations greater than the applicable DEQ RBCs.

AST on Former Tax Lot 1402

In October 2016 two discrete soil samples [TP-1N(0.0-0.5) and TP-1S(0.0-0.5)] were collected beneath the AST on former Tax Lot 1402 to evaluate soil conditions. The soil samples were submitted for analysis of diesel- and oil-range hydrocarbons by Method NWTPH-Dx and PAHs by EPA Method 8270D-SIM. The chemical analytical results for the soil samples are presented in Tables 3 and 4 and are briefly discussed below.

- Diesel- and oil-range hydrocarbons were not detected in the samples submitted for analysis.
- PAHs were not detected in the samples submitted for analysis.

Based on the chemical analytical results, diesel- and oil-range hydrocarbons and PAHs were not present in the surface soil beneath the AST on former Tax Lot 1402 (formerly located at 15745 SW 150th Avenue) at concentrations greater than the applicable DEQ RBCs.

Sheds with Gravel Floors on Former Tax 1400

In October 2016 three direct-push soil borings (DP-5, DP-6, and DP-7) were advanced within the sheds on former Tax Lot 1400 to evaluate soil conditions. Soil samples collected from the direct-push borings were submitted for analysis of RCRA 8 total metals by EPA Method 6020A, gasoline-range hydrocarbons by Method NWTPH-Gx, diesel- and oil-range hydrocarbons by Method NWTPH-Dx, PAHs by EPA Method 8270D-SIM, VOCs by EPA Method 8260B, and PCBs by EPA Method 8082A. The chemical analytical results for the soil samples are presented in Tables 2 through 6 and are briefly discussed below.

- Lead was detected in sample DP-6(0.5-2.0) at a concentration less than the applicable DEQ RBCs but greater than the DEQ CFSL. Lead was detected at concentrations less than applicable DEQ screening levels in the remaining samples submitted for analysis.
- Other metals were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the remaining samples submitted for analysis.
- Gasoline-, diesel-, and oil-range hydrocarbons; PAHs; VOCs; and PCBs were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the samples submitted for analysis.

Based on the chemical analytical results, gasoline-, diesel-, and oil-range hydrocarbons; metals; PAHs; VOCs; and PCBs were not present in surface soil within the sheds with gravel floors on former Tax Lot 1400 (formerly located at 15685 SW 150th Avenue) at concentrations greater than applicable DEQ RBCs. Since physical evidence of contamination was not observed during excavation of the shallow soil within the sheds located on former Tax Lot 1400, and the soil did not pose an unacceptable risk to human health or the environment, special management of the soil within the sheds was not required. Nonetheless, since the former sheds were located in the northeast portion of composite sampling area Comp-3 and in the northwest portion of composite sampling area Comp-4, the upper 0.5 foot of soil in these areas was excavated during mass grading activities and placed in the internment cell (described in Section 5.2.1).

AST Fueling Area on Former Tax Lot 1400

In October 2016 test pit TP-3 was excavated within the AST fueling area on former Tax Lot 1400 to evaluate soil conditions. Four discrete soil samples [TP-3E(0.0-0.5), TP-3E(1.5-2.0), TP-3W(0.0-0.5), and TP-3W(1.5-2.0)] were collected from the test pit and submitted for analysis of organochlorine pesticides by EPA Method 8081B, 17 total metals by EPA Method 6020A, gasoline-range hydrocarbons by Method NWTPH-Gx, diesel- and oil-range hydrocarbons by Method NWTPH-Dx, PAHs by EPA Method 8270D-SIM, VOCs by EPA Method 8260B, and PCBs by EPA Method 8082A. The chemical analytical results for the soil samples are presented in Tables 1 through 6 and briefly discussed below.

- The pesticide dieldrin was detected in samples TP-3E(0.0-0.5) and TP-3W(0.0-0.5) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors and the DEQ CFSL. Dieldrin was either not detected or was detected at concentrations less than the DEQ applicable screening levels in the remaining samples submitted for analysis.
- The pesticides 4,4'-DDE and 4,4'-DDT were detected in samples TP-3(0.0-0.5) and TP-3W(0.0-0.5) at concentrations less than the applicable DEQ RBC but greater than the DEQ CFSLs. The pesticides 4,4'-DDE and 4,4'-DDT were detected at concentrations less than the applicable DEQ screening levels in the remaining samples submitted for analysis.
- Other pesticides were not detected in the samples submitted for analysis.
- Petroleum hydrocarbons, metals, VOCs, PAHs, and PCBs were either not detected or were detected at concentrations less than the applicable screening levels in the samples submitted for analysis, with the exception of lead in sample TP-3E(0.0-0.5). Lead was detected in sample TP-3E(0.0-0.5) at a concentration less than the applicable DEQ RBCs but greater than the DEQ CFSL.

Based on the above analytical results, pesticide-contaminated surface soil (up to 0.5 foot BGS) was present in the AST fueling area on former Tax Lot 1400 (formerly located at 15685 SW 150th Avenue) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors. The shallow soil within the AST fueling area on former Tax Lot 1400 was managed in accordance with the DEQ-approved CMMP and as described in Section 5.2.6.

AST Fueling Area on Former Tax Lot 1402

In October 2016 test pit TP-2 was excavated within the AST fueling area on former Tax Lot 1402 to evaluate soil conditions. Four discrete soil samples [TP-2N(0.0-0.5), TP-2N(2.0-2.5), TP-2S(0.0-0.5), and TP-2S(2.5-3.0)] were collected from the test pit and submitted for analysis of organochlorine pesticides by EPA Method 8081B, 17 total metals by EPA Method 6020A, gasoline-range hydrocarbons by Method NWTPH-Gx, diesel- and oil-range hydrocarbons by Method NWTPH-Dx, PAHs by EPA Method 8270D-SIM, VOCs by EPA Method 8260B, and/or PCBs by EPA Method 8082A. The chemical analytical results for the soil samples are presented in Tables 1 through 6 and briefly discussed below.

- The pesticide dieldrin was detected in samples TP-2N(0.0-0.5) and TP-2S(0.0-0.5) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors but greater than DEQ CFSL. Dieldrin was either not detected or was detected at concentrations less than the applicable DEQ screening levels in the remaining samples submitted for analysis.
- The pesticides 4,4'-DDE and 4,4'-DDT were detected in sample TP-2S(0.0-0.5) at concentrations less than the applicable DEQ RBCs but greater than the DEQ CFSL. The pesticides 4,4'-DDE and 4,4'-DDT were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the remaining samples submitted for analysis.
- Other pesticides were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the samples submitted for analysis.

- Metals were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the samples submitted for analysis, with the exception of arsenic. Although arsenic was detected at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBCs for residential receptors in the samples submitted for analysis, the arsenic concentrations did not exceed the DEQ-established naturally occurring background concentration of 8.8 mg/kg (the DEQ CFSL).
- Gasoline- and oil-range hydrocarbons were not detected in the samples submitted for analysis. Diesel-range hydrocarbons were detected in samples TP-2N(0.0-0.5) and TP-2S(0.0-0.5) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* for residential and construction worker receptors and the DEQ CFSL. Diesel-range hydrocarbons were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the remaining samples submitted for analysis.
- PAHs were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the samples submitted for analysis.
- VOCs and PCBs were not detected in the samples submitted for analysis.

Based on the chemical analytical results, dieldrin- and diesel-contaminated surface soil (up to 0.5 foot BGS) was present in the AST fueling area on former Tax Lot 1402 (formerly located at 15745 SW 150th Avenue) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential and/or construction worker receptors. The shallow soil within the AST fueling area on former Tax Lot 1402 was managed in accordance with the DEQ-approved CMMP and as described in Section 5.2.7.

4.1.2 Phase I ESA and Limited Surface Soil Evaluation (Northern Parcels, 2016)

GeoDesign conducted a Phase I ESA and limited surface soil evaluation of the northern parcels of the project site in October and November 2016. The results of these environmental services are presented in our November 7, 2016 report and are briefly summarized in the following sections.

4.1.2.1 Phase I ESA (Northern Parcels, 2016)

The October and November 2016 Phase I ESA of the northern parcels of the project site identified the following:

- The northern parcels of the project site were used for agricultural purposes from at least 1934 through 2012. The Phase I ESA noted that residual pesticides and associated metals can accumulate in surface soil and sediments in drainage features on agricultural-use land.

4.1.2.2 Limited Surface Soil Evaluation (Northern Parcels, 2016)

Based on the results of the Phase I ESA, GeoDesign conducted a limited surface soil evaluation in November 2016. The limited surface soil evaluation was conducted in general accordance with DEQ's *Guidance for Evaluating Residual Pesticides on Lands Formerly Used for Agricultural Production*, dated January 2006 (updated June 2019), to evaluate the northern parcels of the project site for potential residual pesticide and/or heavy metal concentrations associated with the former agricultural use. Field activities included collecting five 4-point composite soil samples [Comp-1(0.0-0.5) through Comp-5(0.0-0.5)] from 0.0 to 0.5 foot BGS and one sediment sample [Sed-1(0.0-0.5)] from the bank of the creek that transects the northern parcels from north to south. These samples were submitted to Apex for analysis of organochlorine pesticides by

EPA Method 8181B and 17 total metals by EPA Method 6020A. The composite soil sampling areas and the locations of the sediment samples in the northern parcels are shown on Figure 5. The results of the limited surface soil and sediment investigation in the northern parcels are presented in Tables 7 and 8 and are briefly describe below.

Sediment

In October 2016 one sediment sample [SED-1(0.0-0.5)] was collected from the sediment in the creek within in the northern parcels of the project site. The chemical analytical results for the sediment sample is presented in Tables 7 and 8 and are briefly discussed below.

- Pesticides were not detected in the sample submitted for analysis.
- Metals were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the sample submitted for analysis, with the exception of arsenic. Although arsenic was detected at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBCs for residential receptors in the sample submitted for analysis, the arsenic concentration did not exceed the DEQ-established naturally occurring background concentration of 8.8 mg/kg (the DEQ CFSL).

The results of the sediment sample collected in the creek within the northern parcels of the project site indicate that sediment in the creek that transects the northern parcels of the project site has not been adversely affected by pesticides or heavy metals.

Agricultural Areas on Former Tax Lots 100 and 200 (Northern Parcels, 2016)

In October 2016 five 4-point composite shallow surface soil samples [Comp-1(0.0-0.5) through Comp-5(0.0-0.5)] were collected throughout the former agricultural areas within the northern parcels of the project site to evaluate the shallow soil conditions. The shallow soil samples were submitted for analysis of organochlorine pesticides by EPA Method 8081B and 17 total metals by EPA Method 6020A. The chemical analytical results for the shallow soil samples collected in the northern parcels are presented in Tables 7 and 8 and are briefly discussed below.

- The pesticides 4,4'-DDE and dieldrin were detected in the soil samples at concentrations less than the applicable DEQ RBCs but greater than the DEQ CFSLs, with the exception of 4,4'-DDE in sample Comp-5(0.0-0.5). The pesticide 4,4'-DDE was detected in sample Comp-5(0.0-0.5) at a concentration less than the applicable DEQ screening levels.
- The pesticide 4,4'-DDT was detected in samples Comp-1(0.0-0.5) and Comp-3(0.0-0.5) at concentrations less than the applicable DEQ RBC but greater than the DEQ CFSL. The pesticide 4,4'-DDT was detected in the remaining samples submitted for analysis at concentrations less than the applicable DEQ screening levels.
- Other pesticides were either not detected or were detected at concentrations less than the applicable DEQ screening levels.
- Metals were either not detected or were detected at concentrations less than the applicable DEQ screening levels in the sample submitted for analysis, with the exception of arsenic. Although arsenic was detected at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBCs for residential receptors in the samples submitted for analysis, the arsenic concentrations did not exceed the DEQ-established naturally occurring background concentration of 8.8 mg/kg (the DEQ CFSL).

Based on the chemical analytical results, pesticides and metals were not present in the shallow surface soil (up to 0.5 foot BGS) within the former agricultural areas located on the northern parcels at concentrations greater than the applicable DEQ RBCs. Consequently, the pesticide-contaminated soil within the northern parcels did not pose unacceptable risk to human health or the environment and was re-used on site without restriction.

4.1.3 CMMP (GeoDesign, 2017)

GeoDesign prepared a CMMP, dated March 30, 2017, for use by the construction team and to assist the earthwork contractor with the identification and proper management of known and potentially contaminated soil and sediment that could be encountered during construction and earthwork activities. Based on the results of the Phase I ESAs and the limited surface and subsurface soil investigations conducted at the project site, the CMMP did not identify AOCs on the northern parcels. However, the following AOCs were identified on the southern parcels:

- Pesticide-contaminated soil at depths of 0.0 to 0.5 foot BGS in areas of former agricultural use on former Tax Lots 1400, 1401, 1402, 1403, and 1404 (identified as areas Comp-1 through Comp-7 and Comp-9)
- Petroleum-contaminated soil at depths up to 12.5 and 8.5 feet BGS in the vicinities of the HOTs on former Tax Lots 1400 and 1401, respectively
- Gasoline-contaminated soil at depths up to 12.5 feet BGS in the vicinity of the gasoline UST on former Tax Lot 1400
- Petroleum-contaminated soil at depths up to 0.5 foot BGS in the vicinities of the two drum storage areas located on former Tax Lots 1400 and 1402
- Petroleum-contaminated soil at depths up to 0.5 foot BGS in the vicinity of the AST fueling area on former Tax Lot 1402

DEQ reviewed the CMMP and approved it on March 23, 2017. DEQ's approval letter is presented in Appendix B.

The DEQ-approved CMMP stipulated that the shallow soil between 0.0 and 0.5 foot BGS on the east portions of the southern parcels (composite sampling areas Comp-1 through Comp-7 and Comp-9) would be removed and interred in a disposal cell beneath the future park located on the southwest portion of the project site. Deeper surface soil at depths generally between 0.5 foot and 2 feet BGS contained significantly lower concentrations of pesticides and did not necessitate the need for the deeper soil to be managed as solid waste and does not pose an unacceptable risk to future users of the project site. Nonetheless, as described in Section 5.2.1, some deeper soil exhibiting low concentrations of pesticides at depths between 0.5 foot and 2 feet BGS were also interred in the disposal cell beneath the future park area at the southwest corner of the project site. Soil generated during cell construction from below 0.5 foot BGS could be re-used on site as fill without restriction. The location of the interment disposal cell on the southwest portion of the project site is shown on Figure 4.

The DEQ-approved CMMP also stipulated that the two heating oil USTs (one associated with the former residence on former Tax Lot 1400 and one associated with the former residence on former Tax Lot 1401) and one gasoline UST (associated with the former auto service/storage shop on former Tax Lot 1400) be decommissioned by a licensed service provider, including the

removal and proper disposal of associated petroleum-contaminated soil at a RCRA Subtitle D landfill. Shallow areas of petroleum-related impact (near the AST fueling area on former Tax Lot 1402 and near the drum storage areas on former Tax Lots 1400 and 1402) would be effectively mitigated during removal of the upper 0.5 foot of soil related to the pesticide soil removal action.

4.1.4 Phase I ESA Update (GeoDesign, 2017)

GeoDesign conducted a Phase I ESA Update of the northern parcels of the project in September 2017. The September 2017 Phase I ESA Update included a summary of the findings of the initial Phase I ESA and the limited surface soil evaluation, both conducted in October and November 2016. The Phase I ESA Update did not reveal any additional RECs.

5.0 ENVIRONMENTAL ACTIVITIES

Environmental activities completed at the project site and summarized in this report occurred both prior to demolition of the former project site structures (pre-construction activities) and during excavation and grading activities (construction-related activities) in preparation of the new infrastructure. Pre-construction activities included decommissioning the two HOTs (Sections 5.1.1 and 5.1.2), decommissioning the septic systems (Section 5.1.3), and decommissioning the water supply wells (Section 5.1.4). Construction-related activities included the following soil management activities:

- Internment of shallow pesticide-contaminated soil from composite sampling areas Comp-1 through Comp-7 and Comp-9 into the on-site internment cell located on former Tax Lot 1404 (Section 5.2.1)
- Characterization of pesticide-contaminated soil (generated from composite sampling areas Comp-6 and Comp-7) that was inadvertently placed as fill near the south portions of composite sampling areas Comp-6 and Comp-7 (Section 5.2.2)
- Removal of the gasoline UST and associated petroleum-contaminated soil on former Tax Lot 1400 and off-site disposal of the petroleum-contaminated soil (Section 5.2.3)
- Characterization and removal/off-site disposal of petroleum-contaminated soil (generated from the area of the former gasoline UST) that was inadvertently placed as fill in the central portion of former Tax Lot 1400 (Section 5.2.4)
- Internment of shallow petroleum-contaminated soil from the two former drum storage areas on former Tax Lots 1400 and 1402 into the on-site disposal cell located on former Tax Lot 1404 (Section 5.2.5)
- Internment of shallow petroleum-contaminated soil from the former AST fueling area on former Tax Lot 1402 into the on-site disposal cell located on former Tax Lot 1404 (Section 5.2.6)

The pre-construction and construction-related activities are presented below.

5.1 PRE-CONSTRUCTION ENVIRONMENTAL ACTIVITIES

Each of the pre-construction environmental activities noted in Section 5.0 are discussed in the following sections.

5.1.1 HOT Decommissioning Activities (Tax Lot 1400)

On February 14, 2018 K&S Environmental (K&S; a State of Oregon-licensed UST Service Provider) decommissioned the HOT located on Tax Lot 1400 (formerly associated with the residence at 15685 SW 150th Avenue). The HOT was decommissioned by removal and a release of heating oil was reported to DEQ by the K&S on February 14, 2018. A total of 182.79 tons of petroleum-contaminated soil were excavated and transported and disposed of at Waste Management's Hillsboro Landfill (a RCRA Subtitle D landfill) referred herein as Hillsboro Landfill. Groundwater was not encountered in the excavation and K&S completed a cleanup checklist in accordance with DEQ's "Heating Oil Tank Generic Remedy Guidance Document." The maximum concentration of diesel-range hydrocarbons left in place was 1,260 mg/kg at a depth of 13 feet BGS. K&S submitted the generic remedy cleanup report and HOT Service Provider Certification to DEQ on February 26, 2018. After reviewing K&S's generic remedy cleanup report and certification, DEQ issued a letter, dated March 6, 2018, acknowledging that DEQ registered the report and certification and closed LUST File No. 34-18-0156. The Heating Oil Tank Service Provider Certification, Generic Remedy Heating Oil Cleanup Report Form, Cleanup Checklist, Project Cost Summary, and Generic Remedy Cleanup Report (including laboratory reports, Hillsboro Landfill disposal receipts, and recycling receipts) are presented in Appendix C. DEQ's March 6, 2018 registration and LUST file closure letter is presented in Appendix D.

5.1.2 HOT Decommissioning Activities (Tax Lot 1401)

On February 28, 2018 K&S decommissioned the HOT located on Tax Lot 1401 (formerly associated with the residence at 15515 SW 150th Avenue). The HOT was decommissioned by removal and a release of heating oil was reported to DEQ by K&S on March 1, 2018. DEQ subsequently assigned this HOT site as LUST File No. 34-18-0209. A total of 75.24 tons of petroleum-contaminated soil were excavated and then transported and disposed of at the Hillsboro Landfill. Groundwater was not encountered in the excavation and K&S completed a cleanup checklist in accordance with DEQ's "Heating Oil Tank Generic Remedy Guidance Document." The maximum concentration of diesel-range hydrocarbons left in place was 1,200 mg/kg at a depth of 13 feet BGS. K&S submitted the generic remedy cleanup report and HOT Service Provider Certification to DEQ on March 9, 2018. After reviewing K&S's generic remedy cleanup report and certification, DEQ issued a letter, dated March 22, 2018, acknowledging that DEQ registered the report and certification and closed LUST File No. 34-18-0209. The Heating Oil Tank Service Provider Certification, Generic Remedy Heating Oil Cleanup Report Form, Cleanup Checklist, Project Cost Summary, and Generic Remedy Cleanup Report (including laboratory reports, Hillsboro Landfill disposal receipts, and recycling receipts) are presented in Appendix C. DEQ's March 22, 2018 registration and LUST file closure letter is presented in Appendix D.

5.1.3 Septic Tank Decommissioning Activities

The remaining contents of the septic system tanks formerly located on Tax Lots 1401, 1402, and 1404 (associated with the former residences at 15515, 15745, and 15915 SW 150th Avenue) were pumped during decommissioning activities by West Side Drain on February 27, 2018; February 19, 2018; and March 28, 2018, respectively. The West Side Drain invoices are presented in Appendix E. The septic tanks were constructed of concrete. In February and March 2018, the bottom of each empty septic tank was broken to prevent the accumulation of

surface water in the tanks and the tanks were filled in place with crushed rock and/or clean fill. Evidence of soil contamination was not observed surrounding the septic tanks.

5.1.4 Well Abandonment Activities

The water supply wells located on Tax Lots 1401, 1402, and 1404 (associated with the residences formerly located at 15515, 15745, and 15915 SW 150th Avenue) were abandoned by Skyles Drilling, Inc. of Oregon City, Oregon, (an Oregon Water Resources Department-licensed well constructor) between February 27 and March 1, 2018; March 23 and March 28, 2018; and April 25 and April 26, 2018, respectively. The Water Supply Well Reports showing the abandonment details are presented in Appendix F.

5.2 CONSTRUCTION-RELATED ENVIRONMENTAL ACTIVITIES

GeoDesign provided as-needed construction excavation observation, field-screening, and environmental surface sampling services between July 24, 2018 and November 9, 2018 during earthwork activities. During this time, GeoDesign was on site a total of 25 times to observe the earthwork activities, conduct geotechnical services, and document the management of soil at the project site. Each of the construction-related soil management activities noted in Section 5.0 are discussed in the following sections.

5.2.1 Management of Pesticide-Contaminated Surface Soil

Between July and August 2018 the earthwork contractor (BDZ Construction [BDZ] of Beaverton, Oregon) conducted mass grading activities at the project site, which consisted of stripping the upper vegetated soil (between 0 and 0.5 foot BGS) in preparation of infrastructure construction. It is estimated that between approximately 15,000 and 20,000 cubic yards of shallow pesticide-contaminated surface soil were removed from composite sampling areas Comp-1 through Comp-7 and Comp-9 and placed in the on-site internment cell located in the southwest portion of the project site.

On August 28, 2018 Mark Dahl (superintendent with BDZ) informed GeoDesign that the upper 2 feet of soil from select areas within composite sampling areas Comp-3, Comp-4, and Comp-6 had been excavated and placed in the disposal cell rather than just the upper 0.5 foot, as stipulated in the DEQ-approved CMMP. The areas where the upper 2 feet of soil was excavated and placed in the disposal cell are shown on Figure 5.

BDZ completed placing shallow pesticide-contaminated soil from composite sampling areas Comp-1 through Comp-7 and Comp-9 into the disposal cell on September 14, 2018. On September 19, 2018 GeoDesign confirmed that BDZ had placed an orange fabric demarcation layer over the surface of the disposal cell that contained the pesticide-impacted soil. Following placement of the demarcation layer, a minimum 3-foot-thick cap of clean soil was placed over the internment disposal cell in accordance with the DEQ-approved CMMP.

5.2.2 Management of Inadvertently Placed Pesticide-Contaminated Surface Soil

On August 23, 2018 GeoDesign field staff was informed by BDZ that some shallow pesticide-contaminated soil from composite sampling areas Comp-6 and Comp-7 was excavated and inadvertently placed as fill within the south portions the Comp-6 and Comp-7 areas instead of within the disposal cell. The inadvertently placed fill (shown on Figure 5) was reportedly up to

approximately 2 feet thick. On August 24, 2018 GeoDesign field staff met with BDZ who identified the location of the inadvertently placed pesticide-contaminated soil. GeoDesign collected characterization soil samples from the inadvertent placement area identified by BDZ to depths of up to 2 feet BGS to evaluate the magnitude and extent of the pesticide-contaminated soil. Four composite samples [TP Comp-4(0-2) through TP Comp-7(0-2)] were collected and submitted to Apex for analysis of dieldrin (the only COC detected within composite sampling area Comp-6) as well as 4,4-DDE, 4,4-DDD, and 4,4-DDT by EPA Method 8081B and total lead by EPA Method 6020. The locations of characterization composite soil samples TP Comp-4(0-2) through TP Comp-7(0-2) are shown on Figure 5. The analytical results from samples TP Comp-4(0-2) through TP Comp-7(0-2) are presented in Tables 1 and 2 and are briefly summarized below. The laboratory reports are presented in Appendix G.

5.2.2.1 Confirmation Soil Sample Analytical Results

Dieldrin, 4,4-DDE, 4,4-DDD, and 4,4-DDT were detected at concentrations ranging from 0.00455 to 0.0316 mg/kg. These detected concentrations are less than the applicable DEQ RBCs, indicating that the pesticide-contaminated soil inadvertently placed as fill material south of the Comp-6 area would not pose unacceptable risk to excavation workers, construction workers, or future residents. Total lead was detected at concentrations ranging from 8.98 to 10.3 mg/kg. These concentrations are less than the applicable DEQ screening levels. Based on the results of the confirmation soil samples, the pesticide-contaminated soil inadvertently placed as fill material in the south portions of the Comp-6 and Comp-7 areas was left in place. In addition, the south portions of the Comp-6 and Comp-7 areas where the pesticide-contaminated soil was inadvertently placed has been “capped” with additional clean fill to bring this area closer to finished grade. The capping is illustrated by comparing the pre-development topography in this area shown on Figure 2 (representative of the approximate topography after stripping and the inadvertent placement of the pesticide-contaminated soil) to the current topography in this area shown on Figure 4. The pre-development topography in this area was approximately 330 feet above MSL, while the current topography in this area is approximately 350 feet above MSL. Comparing the pre-development topography in this area to the current topography indicates that an approximately 20-foot-thick cap of clean fill has been placed in this area, preventing future exposure to residential receptors at the project site.

5.2.3 Gasoline UST Remedial Excavation

On September 5 through 7, 2018 GeoDesign observed the remediation (by removal) of gasoline-contaminated soil associated with a former release from the gasoline UST that was located on former Tax Lot 1400. Upon arrival on September 5, 2018, the gasoline UST had been removed from the ground by the BDZ. BDZ stated that the UST was encountered during mass grading activities and that it was empty when removed from the ground. GeoDesign observed the condition of the UST after it had been removed. The UST appeared crushed (from the removal process) and covered in rust, with several pin-sized holes observed. BDZ stated that the UST would be disposed of with other metal debris.

On September 5, 2018 GeoDesign began observing BDZ conduct remedial excavation activities in the area where the UST had been removed. During the remedial excavation activities, GeoDesign conducted field screening in accordance with the DEQ-approved CMMP. During the excavation activities on September 5, soil exhibiting field screening evidence of petroleum contamination

was observed between depths of approximately 8.5 and 11 feet BGS. Petroleum-contaminated soil was excavated to a maximum depth of approximately 11 feet BGS, where competent basalt bedrock was encountered. The petroleum-contaminated soil was temporarily stockpiled on plastic sheeting in accordance with the DEQ-approved CMMP. Four confirmation soil samples [SS-2N(10.5), SS-3W(10.0), SS-5S(7.5), and SS-6W(5.0)] were collected from the September 5 interim limits of the remedial excavation. Based on field screening results at these sample locations, it appeared the lateral extent of contamination had not been defined to the north, west, and south. Three confirmation soil samples [SS-1SE(11.0), SS-4E(10.0), and SS-7E(5.0)] were collected from the east final limits of the remedial excavation. The locations of the confirmation soil samples collected from the September 5 limits of the remedial excavation are shown on Figure 7.

On September 6, 2018 GeoDesign collected a composite soil sample (SP-1) from the temporarily stockpiled petroleum-contaminated soil for the purpose of waste characterization profiling, in accordance with the DEQ-approved CMMP.

On September 7, 2018 the remedial excavation was expanded further to the west and south to a maximum depth approximately 13.5 feet BGS, where competent basalt bedrock was encountered. During the excavation activities on September 7, field screening evidence of petroleum impact was generally observed between depths of 8.5 and 12 feet BGS. Soil that exhibited field screening evidence of petroleum impact was temporarily stockpiled on plastic sheeting in accordance with the DEQ-approved CMMP. The west and south limits of the remedial excavation (as of September 7, 2018) are also shown on Figure 7. Confirmation soil samples SS-8W(10), SS-9S(10), and SS-10E(10) were collected from the September 7 final limits of the remedial excavation.

On September 28, 2018 the remedial excavation was expanded further to the north to a maximum depth of approximately 6.5 feet BGS, where competent bedrock was encountered. During the excavation activities on September 28, field screening evidence of petroleum impact was generally observed between depths of 1.5 and 5.5 feet BGS. Soil that exhibited field screening evidence of petroleum impact was temporarily stockpiled on plastic sheeting in accordance with the DEQ-approved CMMP. The north limit of the remedial excavation (as of September 28, 2018) is also shown on Figure 7. Confirmation soil samples SS-11(1.5) and SS-12(5.5) were collected from the final limits of the north excavation sidewall and confirmation soil sample SS-13N(2) was collected from the final limits at the northwest corner of the excavation. Field screening results from samples collected along the southwest portion of the remedial excavation indicated that the lateral extent of the petroleum contamination toward the southwest had not yet been delineated.

On October 1, 2018 the remedial excavation was expanded toward the southwest to a maximum depth approximately 7.5 feet BGS, where competent basalt bedrock was encountered. During the excavation activities on October 1, soil exhibiting field screening evidence of petroleum impact was generally observed between depths of 4 and 5.5 feet BGS. Soil that exhibited field screening evidence of petroleum impact was temporarily stockpiled on plastic sheeting in accordance with the DEQ-approved CMMP. The limits of the remedial excavation (as of October 1, 2018) are shown on Figure 7. On October 1, 2018 confirmation soil samples

SS-14S(2), SS-15W(2), SS-16N(5), SS-17E(5), SS-18E(5.5), SS-19S(4), SS-20S(4), SS-21S(4.5), SS-22(W(5), SS-23W(4.5), SS-24W(3), SS-25N(5), and SS-26N(5.5) were collected from the final limits of the southwest portion of the remedial excavation.

On November 9, 2018 GeoDesign collected four soil gas samples (SG-1 through SG-4) within the backfilled remedial excavation to evaluate soil gas conditions and potential risk from residual gasoline-contamination remaining on the basalt bedrock that could not be removed during remedial excavation activities. The locations of the soil gas samples are also shown on Figure 7. The soil gas samples were collected approximately six weeks after the remedial excavation was backfilled to allow the residual contamination time to volatilize and migrate into the backfill material. The soil gas explorations were advanced using an electric rotary hammer drill (roto-hammer) and an AMS gas vapor probe system with a retract-a-tip owned and operated by GeoDesign. Samples were collected using laboratory-supplied, 1-liter summa sample canisters with in-line filters.

The confirmation soil samples collected from the remedial excavation limits on September 5, 7, and 28 and October 1, 2018 and the composite soil sample (SP-1) collected from the petroleum-contaminated soil stockpile on September 6, 2018 were submitted to Apex for one or more of the following analysis:

- Gasoline-range hydrocarbons by Method NWTPH-Gx
- Diesel- and oil-range hydrocarbons by Method NWTPH-Dx
- One or more VOCs by EPA Method 8260B
- PAHs EPA Method 8270D-SIM
- One or more RCRA 8 metals by EPA Method 6020

The soil gas samples were submitted to PACE Analytical of Mount Juliet, Tennessee, for analysis of gasoline-range hydrocarbons and VOCs by EPA Method TO-15. The chemical analytical results of the confirmation soil samples, waste characterization profile sample, and soil gas samples are presented in Tables 2 through 5 and 9 and are briefly summarized below. The laboratory reports are presented in Appendix G.

5.2.3.1 Confirmation Soil Sample Analytical Results

Gasoline-range hydrocarbons were either not detected or were detected at concentrations less than the applicable DEQ RBCs in the confirmation soil samples collected from the interim limits of the remedial excavation [SS-2N(10.5), SS-3W(10.0), SS-5S(7.5), and SS-6W(5.0)]. The concentrations of gasoline-range hydrocarbons in confirmation soil samples SS-2N(10.5) and SS-3W(10.0) were greater than the DEQ CFSL. VOCs were either not detected or were detected at concentrations less than applicable DEQ RBCs and CFSLs. Nonetheless, soil represented by these four samples was subsequently over-excavated and disposed of at the Hillsboro Landfill due to field screening evidence of petroleum-contaminated soil.

Gasoline-range hydrocarbons were either not detected or were detected at concentrations less than the applicable DEQ RBCs in the confirmation soil samples collected from the final limits of the remedial excavation, with the exception of sample SS-1SE(11.0). Gasoline-range hydrocarbons were detected in confirmation sample SS-1SE(11.0) at a concentration of

280 mg/kg, which exceeds the DEQ *Vapor Intrusion Into Buildings* RBC for residential receptors and the DEQ CFSL. In addition, the gasoline-range hydrocarbons detected in confirmation soil sample SS-13N(2) exceed the DEQ CFSL. VOCs and PAHs were either not detected or were detected at concentrations less than applicable DEQ RBCs and CFSLs in the confirmation soil samples collected from the final limits of the remedial excavation. Metals were either not detected or were detected at concentrations less than the applicable DEQ RBCs and established background concentrations (the CFSLs), with the exception of cadmium detected in confirmation samples SS-11E(1.5), SS-12E(5.5), and SS-13N(2). Cadmium was detected in these confirmation samples at concentrations greater than the DEQ CFSL.

5.2.3.2 Stockpile Soil Sample SP-1 Analytical Results (for Waste Permitting)

Gasoline-range hydrocarbons and lead were detected at concentrations of 9.22 mg/kg and 8.50 mg/kg, respectively. VOCs were not detected in the soil sample submitted for analysis. Based on the analytical results, the stockpiled gasoline-contaminated soil could be transported and disposed of at the Hillsboro Landfill.

5.2.3.3 Confirmation Soil Gas Analytical Results

Gasoline-range hydrocarbons and VOCs were either not detected or were detected at concentrations less than the applicable DEQ *Vapor Intrusion into Buildings* RBCs.

5.2.4 Management of Inadvertently Placed Gasoline-Contaminated Soil

On September 26, 2018 BDZ informed GeoDesign that gasoline-contaminated soil from the gasoline UST area on former Tax Lot 1400 was inadvertently excavated and then placed as fill in the central portion of former Tax Lot 1400 (Figures 6 and 8). GeoDesign met with representatives of BDZ on September 26 who identified the inadvertent placement area. On September 26 GeoDesign observed BDZ excavate initial test pits in the vicinity of the inadvertent placement area and conducted field screening on the soil within the test pits to define the lateral and vertical extents of the inadvertently placed gasoline-contaminated soil. Numerous discrete soil samples were collected and field screened in accordance with the DEQ-approved CMMP. The petroleum-contaminated soil was excavated and temporarily stockpiled on plastic sheeting in accordance with the DEQ-approved CMMP. Based on the field screening results, GeoDesign determined that two inadvertent placement areas existed (Figure 8).

On September 27, 2018 GeoDesign collected a composite soil sample (SP-2) from the temporarily stockpiled petroleum-contaminated soil for the purpose of waste characterization profiling. Composite soil sample SP-2 was collected on September 27, 2018 and submitted to Apex for the following analysis:

- VOCs by EPA Methods 5035A/8260C
- PAHs by EPA Method 8270-SIM
- Cadmium and chromium by EPA Method 6020 (ICP-MS)

On October 9, 2018 GeoDesign observed BDZ excavate additional shallow test pits within the inadvertent placement area to depths of up to 4 feet BGS to further delineate contaminated soil. Based on the field screening results, gasoline-contaminated soil from the north and south portions of the inadvertent placement area was removed to depths of up to 2.5 feet BGS and

temporarily stockpiled in accordance with the DEQ-approved CMMP for later off-site disposal at the Hillsboro Landfill. The limits of the north and south remedial excavation limits are shown on Figure 8. After removal of the gasoline-contaminated soil from the inadvertent placement area, GeoDesign collected six confirmation soil samples from the limits of the north remedial excavation (SS-27 through SS-32) and five confirmation soil samples from the limits of the south remedial excavation (SS-33 through SS-37). The locations of the confirmation soil samples are shown on Figure 8.

The confirmation soil samples collected from the excavation limits on October 9, 2018 were submitted to Apex for one or more of the following analysis:

- Gasoline-range hydrocarbons by Method NWTPH-Gx
- Diesel- and oil-range hydrocarbons by Method NWTPH-Dx
- Cadmium, chromium, and lead by EPA Method 6020 (ICP-MS)

The chemical analytical results for the waste characterization sample (SP-2) and the confirmation soil samples are presented in Tables 2 through 5 and are briefly summarized below. The laboratory reports are presented in Appendix G.

5.2.4.1 Confirmation Soil Analytical Results

Gasoline-, diesel-, and oil-range hydrocarbons were not detected in the samples submitted for analysis, indicating that the inadvertently placed petroleum-contaminated soil in this area was successfully remediated and no unacceptable risk to human health remains in this area. In addition, the central portion of former Tax Lot 1400 where the petroleum-contaminated soil was inadvertently placed has been “capped” with additional clean fill to bring this area closer to finished grade. The capping is illustrated by comparing the pre-development topography in this area shown on Figure 2 (representative of the approximate topography after stripping and the inadvertent placement of the petroleum-contaminated soil) to the current topography in this area shown on Figure 4. The pre-development topography in this area (Figure 2) was approximately 350 feet above MSL, while the current topography in this area (Figure 4) is approximately 360 feet above MSL. Comparing the pre-development topography in this area to the current topography indicates that an approximately 10-foot-thick cap of clean fill has been placed in this area, preventing future exposure to residential receptors at the project site. Cadmium, chromium, and lead were detected at concentrations less than applicable DEQ RBCs and the DEQ established background concentrations (the DEQ CFSLs), with the exception of cadmium in samples SS-27(1.5), SS-28(2), SS-30(1), SS-32(2.5), SS-35(1), and SS-36(1). The calculated 90% UCL concentration of cadmium (0.699 mg/kg) is slightly greater than the DEQ CFSL of 0.63 mg/kg. It is GeoDesign’s opinion that the cadmium concentrations represented naturally occurring background conditions and by themselves did not necessitate the need for the soil to be managed as solid waste and did not pose an unacceptable risk to human health or the environment based on the following:

- The inadvertently placed petroleum-contaminated soil in this area was native alluvium and there is no known anthropogenic source for the elevated cadmium (cadmium was not detected at concentrations greater than 0.63 mg/kg in the soil samples collected from the shallow agricultural use soil).
- The detected concentrations of cadmium do not exhibit a high degree of variability.
- The calculated 90% UCL concentration of cadmium is less than 10 percent greater than the DEQ CFSL of 0.63 mg/kg (a difference of 0.069 mg/kg).
- All detected cadmium concentrations were less than the most conservative DEQ RBCs.

Based on the analytical results from the confirmation soil samples, GeoDesign estimates that approximately 75 cubic yards of gasoline-contaminated soil were excavated from the two inadvertent placement areas and transported to the Hillsboro Landfill for disposal.

5.2.4.2 Stockpile Soil Sample SP-2 Analytical Results (for Waste Permitting)

The VOCs benzene, n-butylbenzene, sec-butylbenzene, toluene, ethylbenzene, naphthalene, n-propylbenzene, isopropylbenzene, 1,2,4-TMB, 1,3,5-TMB, and total xylenes were detected at concentrations ranging from 0.199 to 108.4 mg/kg. The PAHs fluorene, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, and phenanthrene were detected at concentrations ranging from 0.0301 to 7.3 mg/kg. Cadmium and chromium were detected at concentrations of 0.889 mg/kg and 31.5 mg/kg, respectively. Based on the analytical results, the Hillsboro Landfill accepted the petroleum-contaminated soil for disposal under existing Permit No. OR 1284494OR.

5.2.5 Management of Shallow Petroleum-Contaminated Soil (Former Drum Storage Areas)

The shallow petroleum-contaminated soil [represented by previous samples TPComp-1(0.0-1.0), TPComp-2(0.0-0.5), and TPComp-3(0.0-0.5)] collected from depths between 0 and 0.5 foot BGS from the former drum storage areas on former Tax Lots 1400 and 1402 was removed during the mass excavation activities. Field screening evidence of petroleum-contaminated soil was not observed during mass excavation activities in the former drum storage areas. The shallow petroleum-contaminated soil represented by these soil samples was interned in the disposal cell at the southwest portion of the project site in accordance with the DEQ-approved CMMP and capped with a minimum of 3 feet of clean fill (further described in Section 5.2.1). Although the analytical results from these samples did not indicate the presence of contaminants at concentrations greater than applicable DEQ RBCs [with the exception of the PAH benzo(a)pyrene, which exceeded the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors in sample TPComp-3(0.0-0.5)], the clean soil cap nonetheless acts as an engineering control and will protect future residential receptors from the direct-contact exposure pathway. Given that there are no underground utilities within the limits of the disposal cell, the exposure pathway for future excavation receptors becomes incomplete. In addition, future construction of the park and/or green space in this area will not require excavation below 3 feet, thereby mitigating potential unacceptable risk to future construction workers.

5.2.6 Management of Shallow Pesticide-Contaminated Soil (Former AST Fueling Area on Former Tax Lot 1400)

The shallow pesticide-contaminated soil [represented by previous sample TP-3W(0.0-0.5)] collected from a depth between 0 and 0.5 foot BGS in the former AST fueling area located on former Tax Lot 1400 was removed during the mass excavation activities. The shallow pesticide-contaminated soil represented by these soil samples was interned in the disposal cell at the southwest portion of the project site in accordance with the DEQ-approved CMMP and capped with a minimum of 3 feet of clean fill. Following placement of a demarcation layer, a minimum 3-foot-thick cap of clean soil was placed over the internment disposal cell in accordance with the DEQ-approved CMMP.

5.2.7 Management of Shallow Petroleum-Contaminated Soil (Former AST Fueling Area on Former Tax Lot 1402)

The shallow petroleum-contaminated soil [represented by previous samples TP2-N(0.0-0.5) and TP-2S(0.0-0.5)] collected from depths between 0 and 0.5 foot BGS in the former AST fueling area located on former Tax Lot 1402 was removed during the mass excavation activities. Field screening evidence of petroleum-contaminated soil was not observed during mass excavation activities in the former AST fueling areas. The shallow petroleum-contaminated soil represented by these soil samples was interned in the disposal cell at the southwest portion of the project site in accordance with the DEQ-approved CMMP and capped with a minimum of 3 feet of clean fill. Although the analytical results from the characterization samples indicated the presence of diesel-range hydrocarbons at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential and construction worker receptors, the minimum 3-foot-thick clean soil cap acts as an engineering control and will protect future residential receptors from the direct-contact exposure pathway. Given that the future construction of the park and/or greenspace in this area will not require excavation below 3 feet, the cap mitigates potential unacceptable risk to future construction workers.

6.0 CONTAMINATED SOIL MANAGEMENT SUMMARY

GeoDesign conducted several previous investigations at the project site, including a Phase I ESA, a limited surface soil evaluation, a geophysical survey, and a limited subsurface soil evaluation of the southern parcels of the project site and a Phase I ESA and a limited surface soil evaluation of the northern parcels of the project site in September, October, and November 2016. Previous investigations conducted at the project site identified the following seven RECs in connection with the project site: (1) historical use of the project site for agricultural purposes, (2) the presence of a gasoline UST, (3) the presence of two HOTs, (4) the presence of two drum storage areas, (5) the presence of three tractor and maintenance sheds with gravel floors, (6) the presence of two ASTs, and (7) the presence of two AST fueling areas. In addition, the presence of septic systems and water supply wells were identified as features requiring decommissioning/abandonment.

The following environmental activities were conducted to address the above seven RECs and the identified features requiring decommissioning/abandonment.

6.1 HISTORICAL USE OF PROJECT SITE FOR AGRICULTURAL PURPOSES

Previous analytical results indicated that the pesticide dieldrin was present in shallow surface soil (up to 0.5 foot BGS) at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors within the former agricultural areas on the east portions of the southern parcels (within composite sampling areas Comp-1 through Comp-7 and/or Comp-9). During mass grading activities, it is estimated that between 15,000 and 20,000 cubic yards of pesticide-contaminated surface soil excavated between 0.5 foot and 2 feet BGS from composite sampling areas Comp-1 through Comp-7 and Comp-9 were interned in the on-site disposal cell in accordance with the DEQ-approved CMMP. The internment cell was subsequently capped with a minimum of 3 feet of clean fill. An orange fabric demarcation barrier was placed between the pesticide-contaminated soil and the clean fill within the internment cell. Internment of the shallow pesticide-contaminated soil beneath the 3-foot-thick cap of clean fill eliminates unacceptable risk to future residential receptors via the direct contact exposure pathway.

During mass grading activities, the earthwork contractor inadvertently placed pesticide-contaminated soil removed from the north and central portions of the Comp-6 and Comp-7 areas as fill at the south portions of the Comp-6 and Comp-7 areas. GeoDesign subsequently characterized the inadvertent placement area by collecting composite soil samples for chemical analytical testing. Characterization composite sampling results indicated that the inadvertently placed pesticide-contaminated soil would not pose unacceptable risk to excavation workers, construction workers, or future residents. Based on the characterization results, the pesticide-contaminated soil inadvertently placed as fill material on the south portions of the Comp-6 and Comp-7 areas was left in place.

6.2 GASOLINE UST

Previous analytical results indicated that gasoline-range hydrocarbons and ethylbenzene were present at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBCs for residential receptors at depths between 10.5 and 12.5 feet BGS in the vicinity of the gasoline UST located in the former auto service/storage shop. The gasoline-contaminated soil was removed to the extent feasible during remedial excavation (the depths of the remedial excavations were limited by bedrock). Analytical results from confirmation soil samples collected from the final limits of the remedial excavation did not indicate residual contamination at concentrations greater than the applicable DEQ RBCs, with the exception of gasoline-range hydrocarbons detected in sample SS-1SE(11.0). The gasoline-range hydrocarbons detected in sample SS-1SE(11.0) exceeded the DEQ *Vapor Intrusion Into Buildings* RBC for residential receptors. In order to further evaluate the potential risk from residual gasoline contamination that could not be removed during remedial excavation activities, GeoDesign collected four soil gas samples from the fill used to backfill the remedial excavation. The results of the soil gas data did not indicate gasoline-range hydrocarbons or VOCs at concentrations greater than applicable DEQ RBCs. In GeoDesign's opinion, the soil gas data is more representative of actual risk from the vapor intrusion exposure pathway than the soil data from sample SS-1SE(11.0). Based on the soil gas analytical results, unacceptable risk is not present to future residential receptors due to the presence of residual petroleum contamination.

During mass grading activities, the earthwork contractor inadvertently placed petroleum-contaminated soil removed from the vicinity of the former gasoline UST as fill near the central

portion of former Tax Lot 1400. GeoDesign defined the lateral and vertical extents of two separate areas of petroleum-contaminated soil requiring excavation. Petroleum hydrocarbons were not detected in the confirmation soil samples collected from the limits of the two remedial excavations. In addition, cadmium, chromium, and lead were detected at concentrations less than the applicable DEQ RBCs. The analytical results from the confirmation soil samples indicates that the inadvertently placed petroleum-contaminated soil was successfully removed.

A total of 314 tons of petroleum-contaminated soil were exported from the project site and disposed of at the Hillsboro Landfill under waste profile No. OR 1284494OR. The disposal summary sheet provided by Waste Management is presented in Appendix H.

6.3 HOT DECOMMISSIONING ACTIVITIES

K&S decommissioned the two HOTs formerly located on Tax Lots 1400 and 1401 on February 14 and 28, 2018, respectively, in accordance with state and local rules and regulations. A total of 182.79 tons of petroleum-contaminated soil were removed during decommissioning activities associated with the HOT formerly located on former Tax Lot 1400. A total of 75.24 tons of petroleum-contaminated soil were removed during decommissioning activities associated with the HOT formerly located on former Tax Lot 1401. The petroleum-contaminated soil was disposed of at the Hillsboro Landfill. The maximum residual concentrations of diesel-range hydrocarbons (at depths of 13 feet BGS) were 1,260 mg/kg (associated with the release from the former HOT on former Tax Lot 1400) and 1,200 mg/kg (associated with the release from former HOT on former Tax Lot 1401). After reviewing the generic remedy cleanup reports and certifications, DEQ issued letters, dated March 6, 2018 (for LUST File No. 34-18-0156 associated with the former HOT on former Tax Lot 1400) and March 22, 2018 (for LUST File No. 34-18-0209 associated with the former HOT on former Tax Lot 1401), acknowledging that DEQ registered the reports and certifications and closed the LUST files. Based on the results of the decommissioning activities, no unacceptable risk remains from the former HOTs to future receptors at the project site.

6.4 DRUM STORAGE AREAS

Previous analytical results identified PAHs (up to 0.5 foot BGS) and pesticides (up to 2 feet BGS) in surface soil in the drum storage area located on former Tax Lot 1400 at concentrations exceeding the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors. Previous analytical results identified dieldrin in surface soil (up to 0.5 foot BGS) in the drum storage area on former Tax Lot 1402 at concentrations exceeding applicable DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors.

The former drum storage area located on former Tax Lot 1400 was located within composite sampling area Comp-4. The former drum storage areas located on former Tax Lot 1402 were located within composite sampling area Comp-6. During mass grading activities these areas were excavated to depths of up to 2 feet BGS and interned in the on-site disposal cell in accordance with the DEQ-approved CMMP. Physical evidence of petroleum contamination was not observed during the shallow mass grading activities within the former drum storage areas. The internment cell was subsequently capped with a minimum of 3 feet of clean fill. An orange fabric demarcation barrier was placed between the pesticide-contaminated soil and the clean fill within the internment cell. Internment of the shallow pesticide- and PAH-contaminated soil

beneath the 3-foot-thick cap of clean fill eliminates unacceptable risk to future residential receptors via the direct contact exposure pathway.

6.5 TRACTOR AND MAINTENANCE SHEDS WITH GRAVEL FLOORS

Previous analytical results indicated that oil-range hydrocarbons (up to 2 feet BGS) were present in the surface soil within the northwest-most tractor and maintenance shed with a gravel floor located on former Tax Lot 1400, albeit at a concentration less than applicable DEQ RBCs. Petroleum hydrocarbons were not detected in the samples collected from the remaining sheds with gravel floors. The northwest tractor shed is located within former Tax Lot 1400 at the northeast corner of composite sampling area Comp-3. During mass grading activities, the upper approximately 2 feet of soil were removed and interned in the on-site disposal cell in accordance with the DEQ-approved CMMP. Physical evidence of petroleum contamination was not observed during the shallow mass grading activities within the former shed located in the northeast corner of composite sampling area Comp-3.

6.6 ASTs

Previous analytical results indicated that oil-range hydrocarbons (up to 0.5 foot BGS) were present in the surface soil in the vicinity of the former AST on former Tax Lot 1400, albeit at a concentration less than applicable DEQ RBCs. Petroleum hydrocarbons were not detected in the samples collected from vicinity of the former AST on former Tax Lot 1402. The former AST on former Tax Lot 1400 is located near the southeast corner of composite sampling area Comp-4. During mass grading activities at the southeast corner of composite sampling area Comp-4, surface soil up to 0.5 foot BGS was removed and interned in the on-site disposal cell in accordance with the DEQ-approved CMMP. Physical evidence of petroleum contamination was not observed during the shallow mass grading activities in the vicinity of the former ASTs.

6.7 AST FUELING AREAS

Previous analytical results indicated that pesticides (up to 0.5 foot BGS) were present in shallow surface soil within the AST fueling area on former Tax Lot 1400 at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors. Previous analytical results indicated that pesticides and diesel-range hydrocarbons (up to 0.5 foot BGS) were present in shallow surface soil within the AST fueling area on former Tax Lot 1402 at concentrations greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential and/or construction worker receptors.

The former AST fueling areas located on former Tax Lots 1400 and 1402 were located within composite sampling areas Comp-4 and Comp-3, respectively. During mass grading activities, these areas were excavated to depths of up to 2 feet BGS and the excavated soil was placed in the on-site internment cell in accordance with the DEQ-approved CMMP. Physical evidence of contamination was not observed during the shallow mass grading activities within the former AST fueling areas. The internment cell was subsequently capped with a minimum of 3 feet of clean fill. An orange fabric demarcation barrier was placed between the pesticide-contaminated soil and the clean fill within the internment cell. Internment of the shallow pesticide- and diesel-contaminated soil beneath the 3-foot-thick cap of clean fill eliminates unacceptable risk to future residential and construction worker receptors via the direct contact exposure pathway.

6.8 SEPTIC SYSTEM DECOMMISSIONING ACTIVITIES

The former septic system tanks were decommissioned by West Side Drain on February 27, 2018; February 19, 2018; and March 28, 2018, respectively. The bottom of each empty septic tank was broken to prevent the accumulation of surface water in the tanks and the tanks were filled in place with crushed rock and/or clean fill. Evidence of contamination was not observed within the soil surrounding the septic tanks.

6.9 WATER SUPPLY WELL DECOMMISSIONING ACTIVITIES

The water supply wells located on Tax Lots 1401, 1402, and 1404 were abandoned by Skyles Drilling, Inc. between February 27, 2018 and March 1, 2018; March 23 and March 28, 2018; and April 25 and April 26, 2018, respectively.

7.0 CONCLUSIONS

Based on the information provided in this report, it is our opinion that contaminated soil identified during previous investigations and encountered during mass excavation activities has been properly managed and disposed of in accordance with the DEQ-approved site-specific CMMP. Therefore, on behalf of Taylor Morrison, we respectfully request that DEQ issue a No Further Action determination for the project site.

♦ ♦ ♦

We appreciate the opportunity to provide this information. Please call if you have questions regarding this report.

Sincerely,

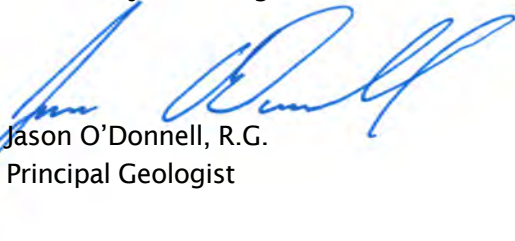
GeoDesign, Inc.



Andre D. DeJonge
Environmental Staff



Kyle R. Sattler, L.G. (Washington)
Senior Project Geologist



Jason O'Donnell, R.G.
Principal Geologist

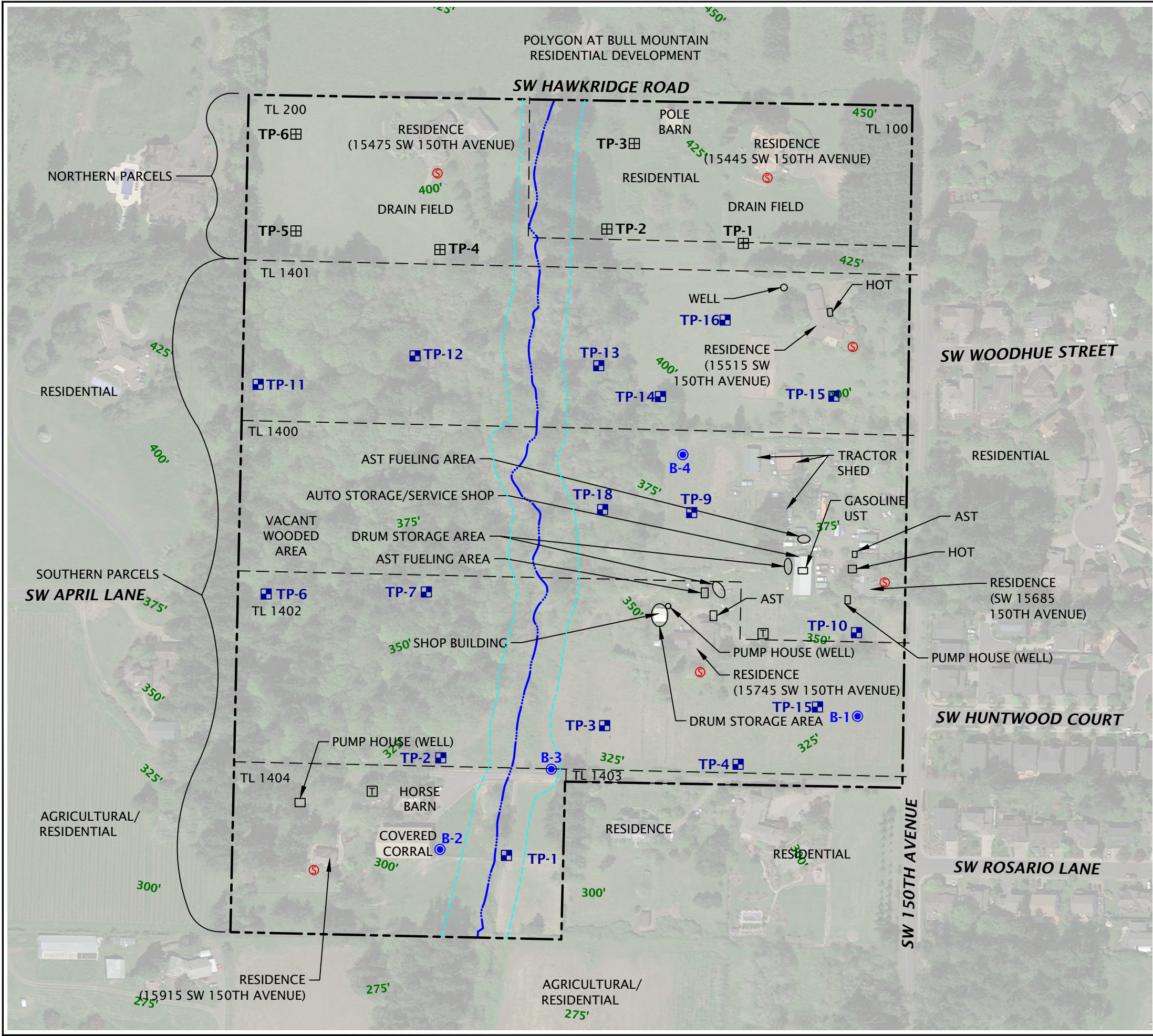


Expires 06/01/2021

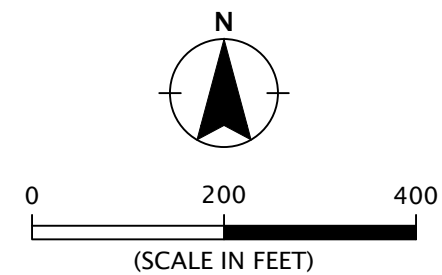
FIGURES



Printed By: mmiller | Print Date: 7/20/2020 1:34:57 PM
File Name: J:\M-R\Polygon\Polygon-145-07\Figures\CAD\Project Site Closeout Report\Polygon-145-07-SP04.dwg | Layout: FIGURE 2



- LEGEND:**
- PROJECT SITE BOUNDARY
 - FORMER TAX LOT BOUNDARY
 - CREEK
 - APPROXIMATE BOUNDARY OF VEGETATED CORRIDOR
 - PAD-MOUNTED TRANSFORMER
 - SEPTIC
 - PRE-DEVELOPMENT TOPOGRAPHY (10-FOOT INTERVALS; 50-FOOT INDEX)
 - B-1 BORING (OCTOBER 2016)
 - TP-1 GEOTECHNICAL TEST PIT (OCTOBER 2016)
 - TP-1 GEOTECHNICAL TEST PIT (NOVEMBER 2017)

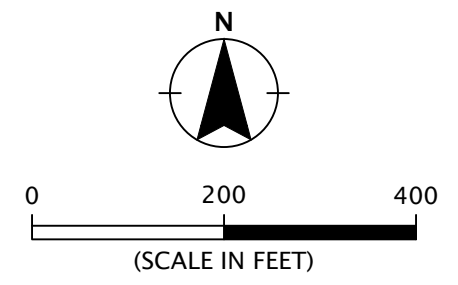


SITE PLAN BASED ON AERIAL PHOTOGRAPH
OBTAINED FROM GOOGLE EARTH PRO®,
JULY 21, 2016



SITE PLAN - PRE-DEVELOPMENT LAYOUT	FIGURE 2
	RIVER TERRACE CROSSING AREA 10 TIGARD, OR
POLYGON-145-07	JULY 2020
GEODESIGN AN NVIS COMPANY	



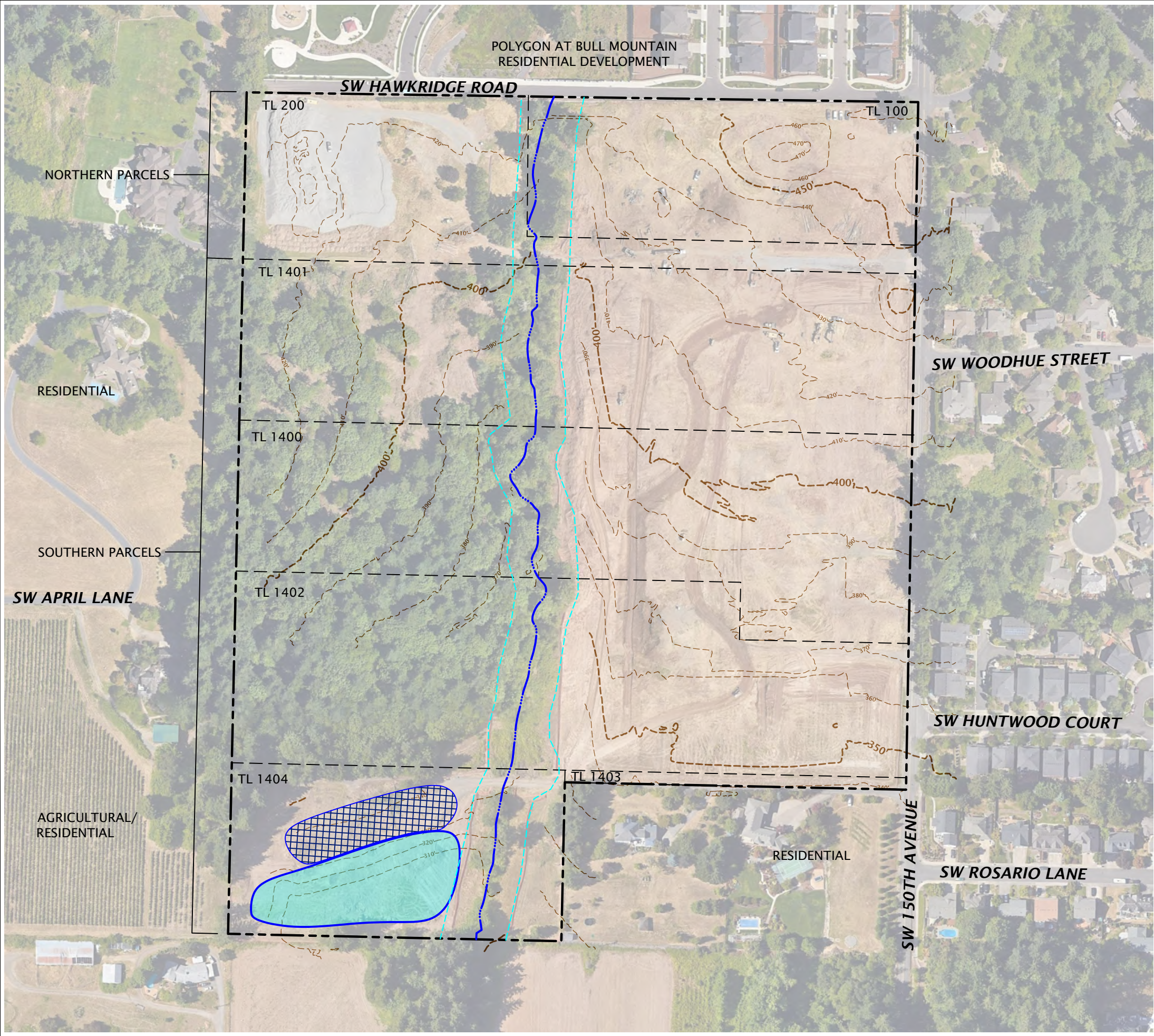
LEGEND:
----- PROJECT SITE BOUNDARY



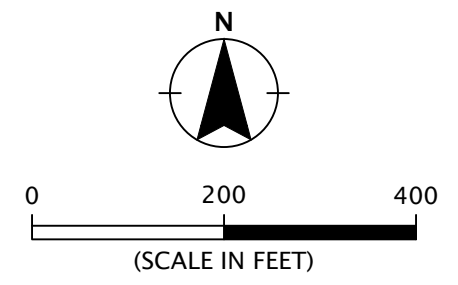
SITE PLAN BASED ON IMAGE OF POWERPOINT
SLIDE OF PROPOSED DEVELOPMENT OBTAINED
FROM RTC MARCH 4 HEARING PRESENTATION

 AN  COMPANY	POLYGON-145-07	SITE PLAN - PROPOSED REDEVELOPMENT	
	JULY 2020	RIVER TERRACE CROSSING AREA 10 TIGARD, OR	FIGURE 3

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File Name: J:\M-R\Polygon\Polygon-145\Polygon-145-07\Figures\CAD\Project Site Closeout Report\Polygon-145-07-SP05.dwg | Layout: FIGURE 4

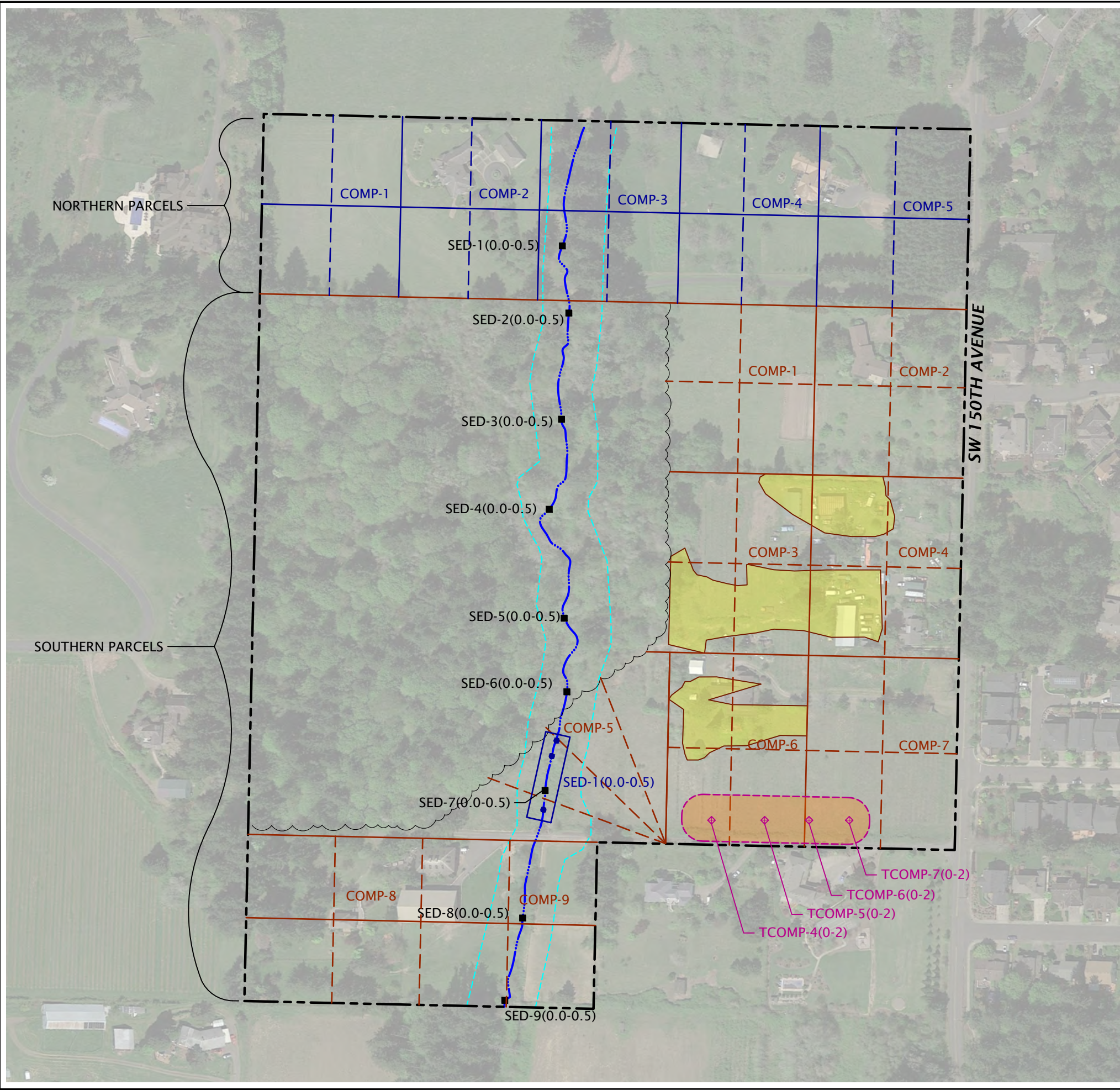


- LEGEND:**
- PROJECT SITE BOUNDARY
 - FORMER TAX LOT BOUNDARY
 - CREEK
 - APPROXIMATE BOUNDARY OF VEGETATED CORRIDOR
 - CURRENT TOPOGRAPHY (10-FOOT INTERVALS; 50-FOOT INDEX)
 - STORMWATER FACILITY
 - INTERMENT DISPOSAL CELL



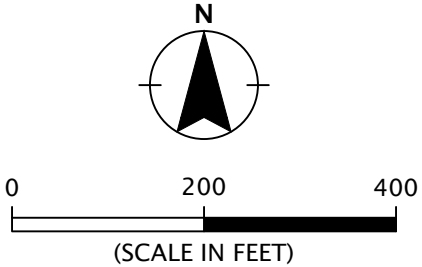
SITE PLAN BASED ON AERIAL PHOTOGRAPH
OBTAINED FROM GOOGLE EARTH PRO®,
MAY 29, 2020

	SITE PLAN - CURRENT TOPOGRAPHY LAYOUT	
	POLYGON-145-07	RIVER TERRACE CROSSING AREA 10 TIGARD, OR
	JULY 2020	FIGURE 4

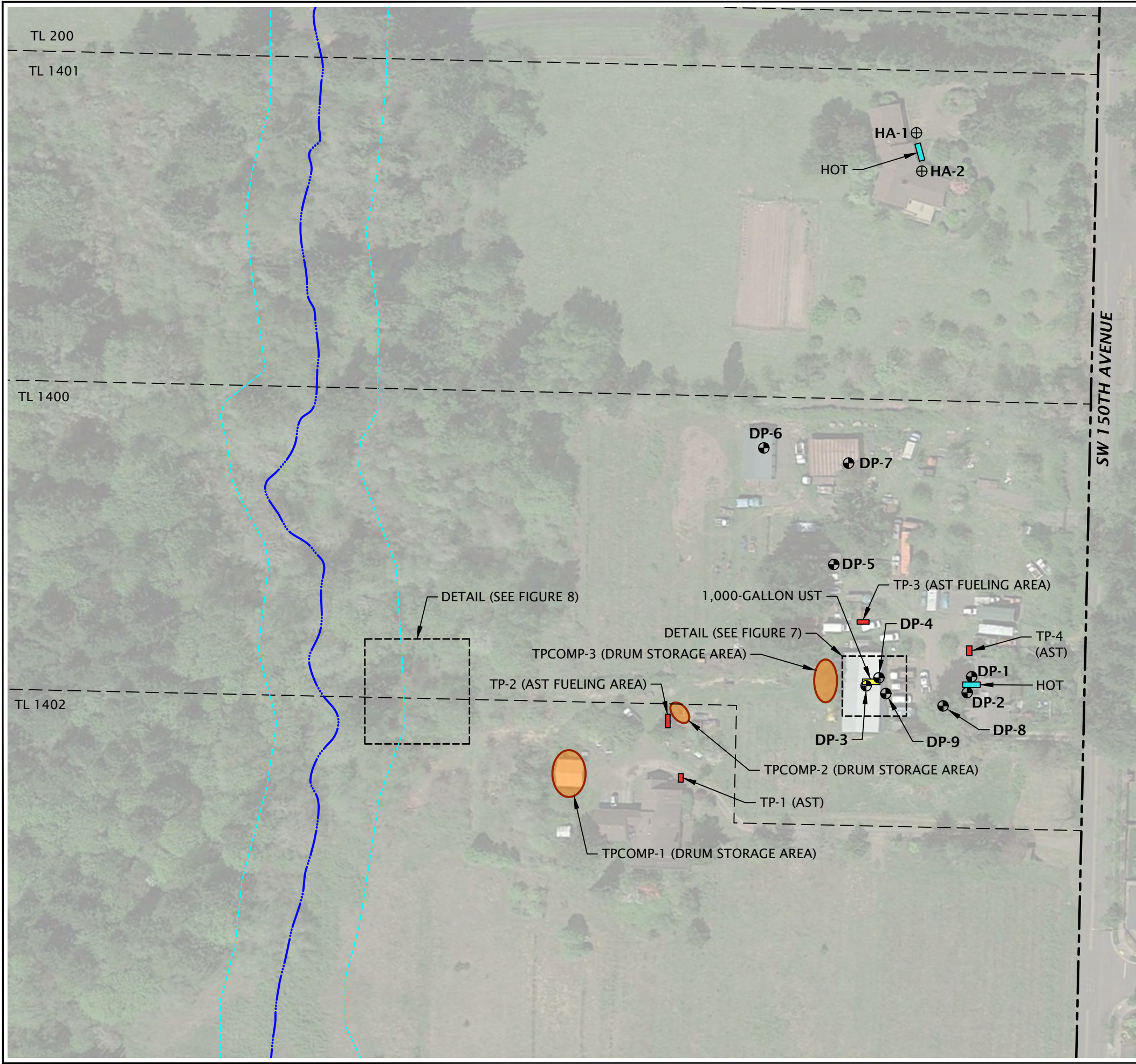


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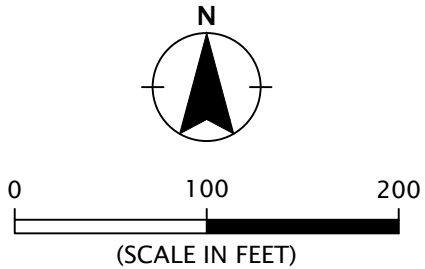
- PROJECT SITE BOUNDARY
- CREEK
- APPROXIMATE BOUNDARY OF VEGETATED CORRIDOR
- COMPOSITE SAMPLING AREA (SOUTHERN PARCELS)
- COMPOSITE SAMPLING AREA (NORTHERN PARCELS)
- COMPOSITE SEDIMENT SAMPLE LOCATION (OCTOBER 2016)
- SED-1(0.0-0.5)
- SED-2(0.0-0.5) ■ APPROXIMATE DISCRETE SEDIMENT SAMPLE LOCATION (OCTOBER AND NOVEMBER 2016)
- LOCATION OF INADVERTENTLY PLACED PESTICIDE-CONTAMINATED SOIL (AUGUST 2018)
- TPCOMP-4(0-2) ♦ COMPOSITE SOIL SAMPLE (AUGUST 2018)
- AREAS OF SOIL EXCAVATED UP TO 2 FEET BGS AND DISPOSED OF IN ON-SITE INTERNMENT CELL



SITE PLAN BASED ON AERIAL PHOTOGRAPH
OBTAINED FROM GOOGLE EARTH PRO®,
JULY 21, 2016

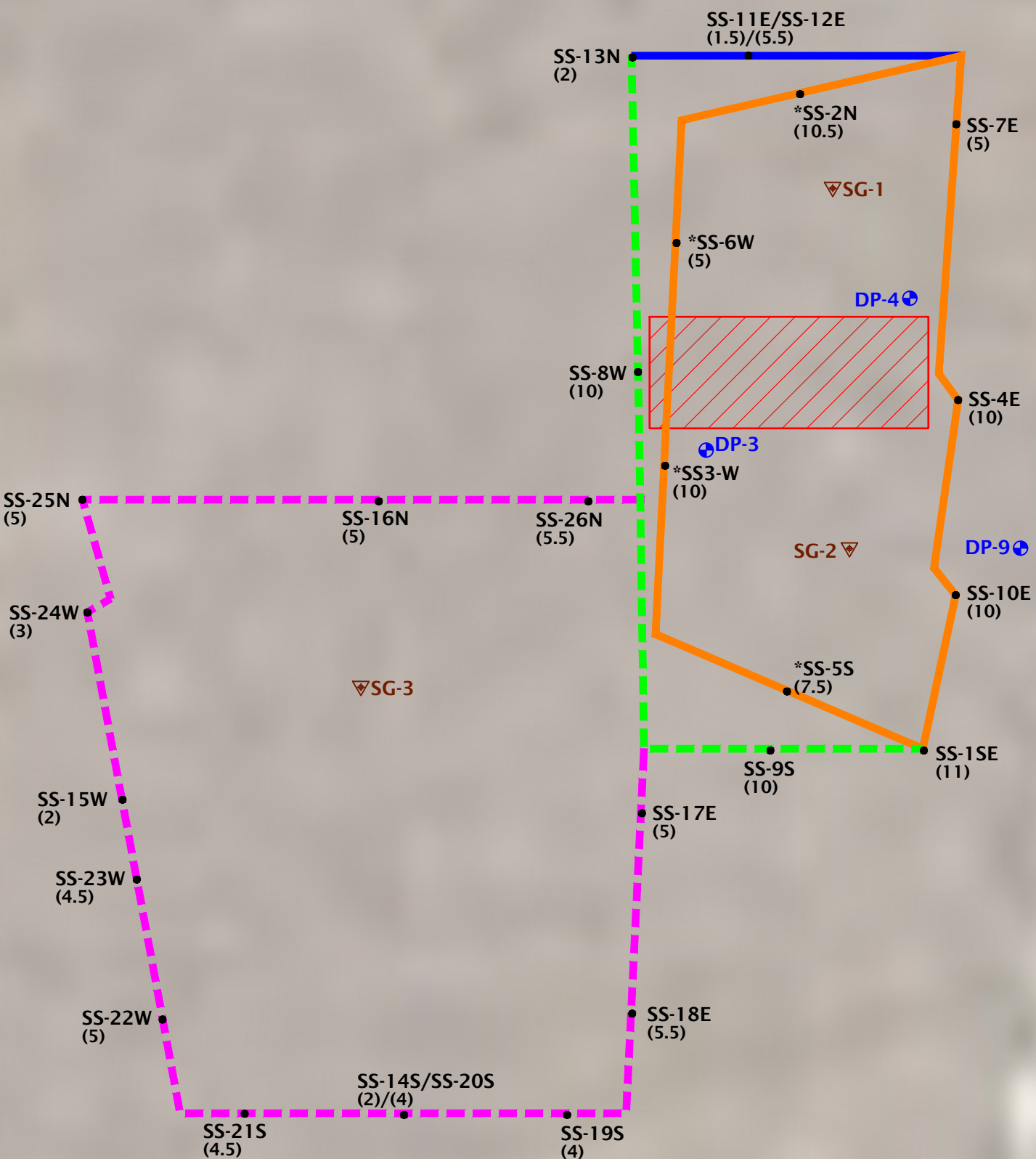


- LEGEND:**
- PROJECT SITE BOUNDARY
 - CREEK
 - APPROXIMATE BOUNDARY OF VEGETATED CORRIDOR
 - FORMER TAX LOT BOUNDARY
 - HA-1 ⊕ HAND AUGER BORING (OCTOBER 2016)
 - DP-1 ⊕ DIRECT-PUSH BORING (OCTOBER 2016)
 - TEST PIT COMPOSITE SAMPLING AREA (OCTOBER 2016)
 - 675-GALLON HOT
 - AST
 - 1,000-GALLON UST

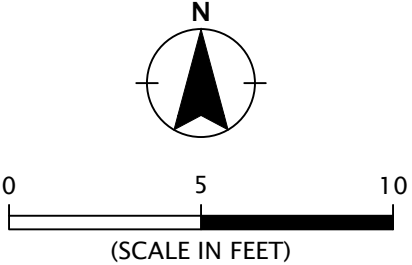


SITE PLAN BASED ON AERIAL PHOTOGRAPH
OBTAINED FROM GOOGLE EARTH PRO®,
JULY 21, 2016

SITE PLAN - EXPLORATION AND TEST PIT COMPOSITE SAMPLING LOCATIONS	RIVER TERRACE CROSSING AREA 10 TIGARD, OR	
	POLYGON-145-07	JULY 2020
FIGURE 6		

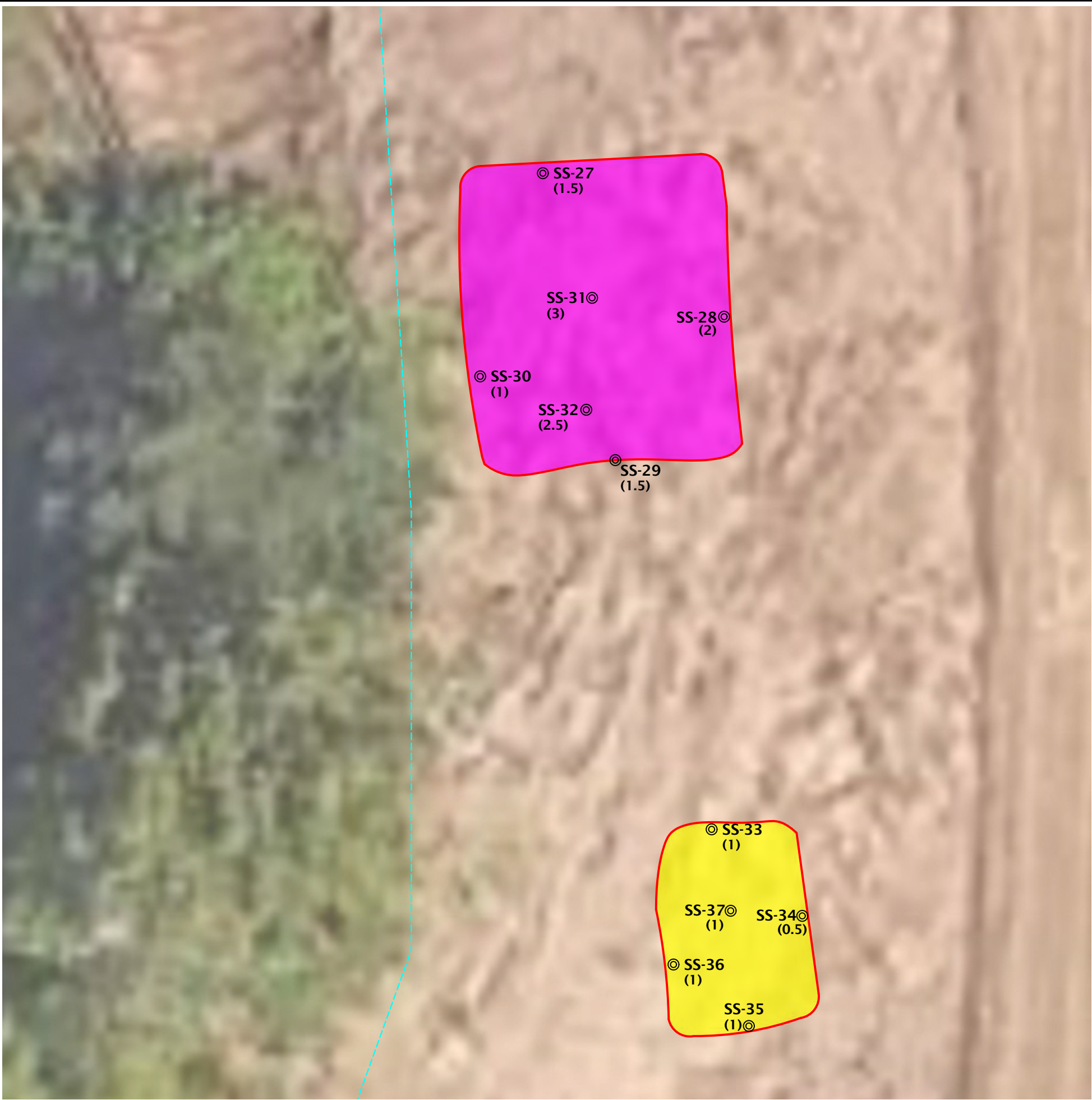


- LEGEND:**
- REMEDIAL EXCAVATION LIMITS (SEPTEMBER 5, 2018)
 - REMEDIAL EXCAVATION LIMITS (SEPTEMBER 7, 2018)
 - REMEDIAL EXCAVATION LIMITS (SEPTEMBER 28, 2018)
 - REMEDIAL EXCAVATION LIMITS (OCTOBER 1, 2018)
 - APPROXIMATE LOCATION OF FORMER GASOLINE UST
 - CONFIRMATION SOIL SAMPLE LOCATION AND DEPTH IN FEET (SEPTEMBER AND OCTOBER 2018)
 - CONFIRMATION SOIL SAMPLE REPRESENTATIVE OF SOIL THAT WAS OVER-EXCAVATED AND DISPOSED OF AT A RCRA SUBTITLE D LANDFILL
 - SOIL GAS SAMPLE (NOVEMBER 9, 2018)
 - DIRECT-PUSH BORING (OCTOBER 2016)



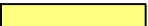
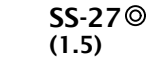






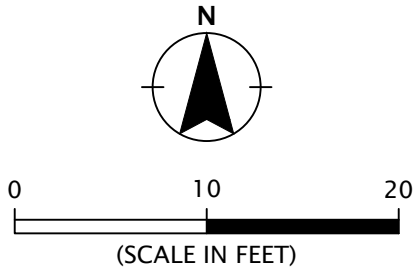
SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®, MARCH 6, 2020

SITE PLAN DETAIL - UST REMEDIAL EXCAVATION LIMITS		RIVER TERRACE CROSSING AREA 10 TIGARD, OR	FIGURE 7
POLYGON-145-07	JULY 2020		





LEGEND:

-  LIMITS OF INADVERTENTLY PLACED PETROLEUM-CONTAMINATED SOIL
-  NORTHERN REMEDIAL EXCAVATION AREA
-  SOUTHERN REMEDIAL EXCAVATION AREA
-  CONFIRMATION SOIL SAMPLE LOCATION AND DEPTH IN FEET (OCTOBER 2018)
-  CREEK
-  APPROXIMATE BOUNDARY OF VEGETATED CORRIDOR
-  VEGETATED CORRIDOR
-  GRADED AREA AT TIME OF EXCAVATION



SITE PLAN BASED ON OBSERVATIONS AND
FIELD MEASUREMENTS BY GEODESIGN STAFF

 AN  COMPANY	POLYGON-145-07	SITE PLAN DETAIL - INADVERTENTLY PLACED GASOLINE-CONTAMINATED SOIL REMEDIAL EXCAVATION LIMITS	
	JULY 2020	RIVER TERRACE CROSSING AREA 10 TIGARD, OR	
	FIGURE 8		

TABLES

TABLE 1 Summary of Sediment and Soil Sample Chemical Analytical Results ¹ Organochlorine Pesticides River Terrace Crossing Area 10 - Southern Parcels 15515, 15685, 15745, and 15915 SW 150th Avenue Tigard, Oregon																							
Sample I.D. (depth in feet BGS)	Sample Date	Organochlorine Pesticides EPA Method 8081B (mg/kg)																					
		4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	alpha-BHC	cis-Chlordane	beta-BHC	Chlordane	delta-BHC	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin Aldehyde	Endrin Ketone	gamma-BHC (Lindane)	trans-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxychlor	Toxaphene
Surface Soil Samples from Former Agricultural Areas																							
Comp-1(0.0-0.5)	09/30/16	0.00193 U	0.0110	0.0100	0.00193 U	0.00193 U	0.00193 U	0.00193 U	0.0578 U	0.00193 U	0.168	0.00193 U	0.00193 U	0.00193 U	0.00193 U	0.00193 U	0.00193 U	0.00553	0.00193 U	0.00193 U	0.00193 U	0.00578 U	0.0578 U
Comp-2(0.0-0.5)	09/30/16	0.00200 U	0.0224	0.0169	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.0599 U	0.00200 U	0.119	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00561	0.00200 U	0.00200 U	0.00200 U	0.00599 U	0.0599 U
Comp-3(0.0-0.5)	09/30/16	0.00194 U	0.0568	0.0422	0.00194 U	0.00194 U	0.00194 U	0.00194 U	0.0581 U	0.00194 U	0.189	0.00194 U	0.00194 U	0.00194 U	0.00194 U	0.00194 U	0.00194 U	0.00194 U	0.00194 U	0.00194 U	0.00194 U	0.00581 U	0.0581 U
Comp-4(0.0-0.5)	09/30/16	0.00190 U	0.0971	0.0426	0.00190 U	0.00190 U	0.00237 U	0.00190 U	0.0569 U	0.00190 U	0.0437	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00569 U	0.0569 U
Comp-5(0.0-0.5)	09/30/16	0.00196 U	0.0484	0.0395	0.00196 U	0.00196 U	0.00196 U	0.00196 U	0.0587 U	0.00196 U	0.134	0.00196 U	0.00196 U	0.00196 U	0.00196 U	0.00196 U	0.00196 U	0.00196 U	0.00196 U	0.00196 U	0.00196 U	0.00587 U	0.0587 U
Comp-6(0.0-0.5)	09/30/16	0.00319 U	0.117	0.105	0.00187 U	0.00187 U	0.00347 U	0.00187 U	0.0562 U	0.00187 U	0.0771	0.00187 U	0.00187 U	0.00225 U	0.00187 U	0.00187 U	0.00187 U	0.00212	0.00187 U	0.00187 U	0.00187 U	0.00562 U	0.0562 U
Comp-7(0.0-0.5)	09/30/16	0.00343	0.108	0.0700	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.0570 U	0.00190 U	0.0776	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00570 U	0.0570 U
Comp-8(0.0-0.5)	09/30/16	0.00202 U	0.00429	0.00224	0.00202 U	0.00202 U	0.00202 U	0.00202 U	0.0607 U	0.00202 U	0.00202 U	0.00202 U	0.00202 U	0.00202 U	0.00202 U	0.00202 U	0.00202 U	0.00202 U	0.00202 U	0.00202 U	0.00202 U	0.00607 U	0.0607 U
Comp-9(0.0-0.5)	09/30/16	0.00188 U	0.0450	0.0270	0.00188 U	0.00188 U	0.00188 U	0.00188 U	0.0565 U	0.00188 U	0.0471	0.00188 U	0.00188 U	0.00188 U	0.00188 U	0.00188 U	0.00188 U	0.00188 U	0.00188 U	0.00188 U	0.00188 U	0.00565 U	0.0565 U
Comp-1(0.25-0.5)	10/20/16	0.00221 U	0.00883	0.00931	0.00221 U	0.00221 U	0.00221 U	0.00221 U	0.0662 U	0.00221 U	0.145	0.00221 U	0.00221 U	0.00221 U	0.00221 U	0.00221 U	0.00221 U	0.0116	0.00221 U	0.00221 U	0.00221 U	0.00662 U	0.0662 U
Comp-2(0.25-0.5)	10/20/16	0.00225 U	0.0157	0.00976	0.00225 U	0.00225 U	0.00225 U	0.00225 U	0.0675 U	0.00225 U	0.0418	0.00225 U	0.00225 U	0.00225 U	0.00225 U	0.00225 U	0.00225 U	0.00360	0.00225 U	0.00225 U	0.00225 U	0.00675 U	0.0675 U
Comp-3(0.25-0.5)	10/20/16	0.00226 U	0.0192	0.0225	0.00226 U	0.00226 U	0.00226 U	0.00226 U	0.0677 U	0.00226 U	0.208	0.00226 U	0.00226 U	0.00226 U	0.00226 U	0.00226 U	0.00226 U	0.00315	0.00731	0.00226 U	0.00226 U	0.00677 U	0.0677 U
Comp-4(0.25-0.5)	10/20/16	0.00229 U	0.0374	0.0283	0.00229 U	0.00229 U	0.00369	0.00229 U	0.0686 U	0.00229 U	0.0300	0.00229 U	0.00229 U	0.00229 U	0.00229 U	0.00229 U	0.00229 U	0.00229 U	0.00229 U	0.00229 U	0.00229 U	0.00686 U	0.0686 U
Comp-5(0.25-0.5)	10/20/16	0.00217 U	0.0392	0.0325	0.00217 U	0.00217 U	0.00217 U	0.00217 U	0.0650 U	0.00217 U	0.0933	0.00217 U	0.00217 U	0.00217 U	0.00217 U	0.00217 U	0.00217 U	0.00217 U	0.00217 U	0.00217 U	0.00217 U	0.00650 U	0.0650 U
Comp-6(0.25-0.5)	10/20/16	0.00258 U	0.0501	0.0561	0.00215 U	0.00215 U	0.0117	0.00215 U	0.0644 U	0.00215 U	0.0538	0.00215 U	0.00215 U	0.00215 U	0.00462 U	0.00215 U	0.00215 U	0.00273	0.00364	0.00215 U	0.00215 U	0.00644 U	0.0644 U
Comp-7(0.25-0.5)	10/20/16	0.00212 U	0.0153	0.0191	0.00212 U	0.00212 U	0.00212 U	0.00212 U	0.0637 U	0.00212 U	0.0183	0.00212 U	0.00212 U	0.00212 U	0.00212 U	0.00212 U	0.00212 U	0.00212 U	0.00212 U	0.00212 U	0.00212 U	0.00637 U	0.0637 U
Comp-8(0.25-0.5)	10/21/16	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.0669 U	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.00223 U	0.00669 U	0.0669 U
Comp-9(0.25-0.5)	10/21/16	0.00218 U	0.0788	0.0591	0.00218 U	0.00218 U	0.00218 U	0.00218 U	0.0655 U	0.00218 U	0.0751	0.00218 U	0.00218 U	0.00218 U	0.00218 U	0.00218 U	0.00218 U	0.00473	0.00218 U	0.00218 U	0.00218 U	0.00655 U	0.0655 U
Comp-1(1.5-2.0)	10/20/16	0.00114 U	0.00114 U	0.00114 U	0.00114 U	0.00114 U	0.00114 U	0.00114 U	0.0343 U	0.00114 U	0.00361	0.00114 U	0.00114 U	0.00114 U	0.00114 U	0.00114 U	0.00114 U	0.00114 U	0.00114 U	0.00114 U	0.00114 U	0.00343 U	0.0343 U
Comp-2(1.5-2.0)	10/20/16	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.0351 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00351 U	0.0351 U
Comp-3(1.5-2.0)	10/20/16	0.00111 U	0.00379	0.00274	0.00111 U	0.00111 U	0.00111 U	0.00111 U	0.0333 U	0.00111 U	0.0229	0.00111 U	0.00111 U	0.00111 U	0.00111 U	0.00111 U	0.00111 U	0.00111 U	0.00111 U	0.00111 U	0.00111 U	0.00333 U	0.0333 U
Comp-4(1.5-2.0)	10/20/16	0.00483 U	0.0336	0.0200	0.00109 U	0.00109 U	0.0170	0.00109 U	--	0.00109 U	0.0220	0.00109 U	0.00109 U	0.00109 U	0.00304 U	0.00109 U	0.00109 U	0.00109 U	0.00962	0.00109 U	0.00347	0.00326 U	0.0326 U
Comp-5(1.5-2.0)	10/20/16	0.00107 U	0.00179	0.00118	0.00107 U	0.00107 U	0.00107 U	0.00107 U	0.0322 U	0.00107 U	0.00378	0.00107 U	0.00107 U	0.00107 U	0.00107 U	0.00107 U	0.00107 U	0.00107 U	0.00107 U	0.00107 U	0.00107 U	0.00322 U	0.0322 U
Comp-6(1.5-2.0)	10/20/16	0.00206	0.0232	0.0147	0.00106 U	0.00106 U	0.00107	0.00106 U	0.0318 U	0.00106 U	0.0380	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00318 U	0.0318 U
Comp-7(1.5-2.0)	10/20/16	0.00106 U	0.0244	0.0121	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.0319 U	0.00106 U	0.00489	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00319 U	0.0319 U
Comp-9(1.5-2.0)	10/21/16	0.00106 U	0.00202	0.00175	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.0317 U	0.00106 U	0.00182	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.00317 U	0.0317 U
Sediment Samples from Creek																							
SED-1(0.0-0.5)	10/12/16	0.00295 U	0.00448	0.00526	0.00295 U	0.00295 U	0.00295 U	0.00295 U	0.0886 U														

TABLE 1
Summary of Sediment and Soil Sample Chemical Analytical Results ¹
Organochlorine Pesticides
River Terrace Crossing Area 10 - Southern Parcels
15515, 15685, 15745, and 15915 SW 150th Avenue
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Organochlorine Pesticides EPA Method 8081B (mg/kg)																					
		4,4' -DDD	4,4' -DDE	4,4'-DDT	Aldrin	alpha-BHC	cis-Chlordane	beta-BHC	Chlordane	delta-BHC	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin Aldehyde	Endrin Ketone	gamma-8HC (Lindane)	trans-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxychlor	Toxaphene
Surface Soil Samples in Vicinities of Drum Storage Areas on Former Tax Lots 1400 and 1402																							
TPComp-2(0.0-0.5)	10/12/16	0.00451 U	0.229	0.177	0.0021 U	0.0021 U	0.0577 U	0.0021 U	0.0629 U	0.0021 U	0.0917	0.0021 U	0.00273 U	0.00252 U	0.00524 U	0.00252 U	0.00315 U	0.00333	0.0327 U	0.0021 U	0.0042 U	0.00629 U	0.06290 U
TPComp-2(1.5-2.0)	10/12/16	0.00112 U	0.00116	0.00112 U	0.00112 U	0.00112 U	0.00112 U	0.00112 U	0.0336 U	0.00112 U	0.00112 U	0.00112 U	0.00112 U	0.00112 U	0.00112 U	0.00112 U	0.00112 U	0.00112 U	0.00112 U	0.00112 U	0.00112 U	0.00336 U	0.0336 U
TPComp-3(0.0-0.5)	10/12/16	0.104 U	0.240	0.435	5.93	0.0415 U	0.0415 U	0.0415 U	1.25 U	0.0415 U	0.507	0.0415 U	0.0415 U	0.0415 U	0.0415 U	0.0415 U	0.0914 U	0.0415 U	0.0415 U	0.0415 U	0.0415 U	0.162 U	1.25 U
TPComp-3(1.5-2.0)	10/12/16	0.00101 U	0.00359	0.00734	0.0854	0.00101 U	0.00101 U	0.00101 U	0.0304 U	0.00101 U	0.0109	0.00101 U	0.00101 U	0.00101 U	0.00101 U	0.00101 U	0.00450 U	0.00101 U	0.00101 U	0.00101 U	0.00101 U	0.00304 U	0.0304 U
Inadvertently Placed Pesticide-Contaminated Surface Soil - Confirmation Samples																							
TP Comp-4(0-2)	08/24/18	0.00548	0.0316	0.0124	--	--	--	--	--	--	0.0200	--	--	--	--	--	--	--	--	--	--	--	--
TP Comp-5(0-2)	08/24/18	0.00113 U	0.00530	0.0104	--	--	--	--	--	--	0.00651	--	--	--	--	--	--	--	--	--	--	--	--
TP Comp-6(0-2)	08/24/18	0.00108 U	0.00933	0.0144	--	--	--	--	--	--	0.00861	--	--	--	--	--	--	--	--	--	--	--	--
TP Comp-7(0-2)	08/24/18	0.00455	0.0191	0.00942	--	--	--	--	--	--	0.0171	--	--	--	--	--	--	--	--	--	--	--	--
DEQ Generic RBCs ²																							
Soil Ingestion, Dermal Contact, and Inhalation																							
Residential	2.7	1.8	1.9	0.03	0.086	NE	NE	1.7	NE	0.034	380	380	NE	19	NE	NE	0.49	NE	0.11	0.055	NE	0.49	
Construction Worker	94	66	66	1.1	3	NE	NE	61	NE	1.2	1,600	1,600	NE	80	NE	NE	17	NE	4	2	NE	17	
Excavation Worker	2,600	1,800	1,800	30	83	NE	NE	1,700	NE	33	45,000	45,000	NE	2,200	NE	NE	470	NE	110	56	NE	470	
Volatilization to Outdoor Air																							
Residential	NV	>Csat	NV	>Csat	NV	NE	NE	>Csat	NE	NV	>Max	>Max	NE	NV	NE	NE	NV	NE	18	28	NE	NV	
Vapor Intrusion into Buildings																							
Residential	NV	>Csat	NV	>Csat	NV	NE	NE	>Csat	NE	NV	>Max	>Max	NE	NV	NE	NE	NV	NE	18	28	NE	NV	
DEQ CFSLS ³	0.0063	0.01	0.01	0.023	0.0063	0.27	0.009	0.91	NE	0.0045	0.64		NE	0.0014	NE	NE	0.0095	NE	0.017	0.0042	5.1	0.36	

Notes:
1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon.
2. DEQ Generic RBCs dated May 2018
3. DEQ CFSLS dated February 21, 2019
>Csat: This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present.
>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.
NV: chemical is considered non-volatile
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Blue shading indicates analyte detection at a concentration greater than one or more DEQ RBCs and CFSLS.
Gray shading indicates analyte detection at a concentration greater than DEQ CFSLS.
--: not analyzed

TABLE 2 Summary of Sediment and Soil Sample Chemical Analytical Results ¹ Total Metals and TCLP Lead River Terrace Crossing Area 10 - Southern Parcels 15515, 15685, 15745, and 15915 SW 150th Avenue Tigard, Oregon																			
Sample I.D. (depth in feet BGS)	Sample Date	Total Metals EPA Methods 6020A/6020 (ICP-MS) (mg/kg)																	TCLP Lead EPA Methods 1311/6020 (mg/L)
		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
Surface Soil Samples from Former Agricultural Areas																			
Comp-1(0.0-0.5)	09/30/16	1.09 U	3.14	263	0.557	0.219 U	16.9	12.9	10.1	9.65	0.0874 U	1.09 U	11.6	1.09 U	0.219 U	0.219 U	54.5	55.5	--
Comp-2(0.0-0.5)	09/30/16	1.14 U	2.44	229	0.398	0.227 U	15.5	10.1	12.9	8.79	0.0909 U	1.14 U	11.0	1.14 U	0.227 U	0.227 U	45.6	55.7	--
Comp-3(0.0-0.5)	09/30/16	1.23 U	2.86	264	0.481	0.444	17.0	13.3	42.4	40.0	0.0986 U	1.23 U	10.9	1.23 U	0.247 U	0.247 U	49.2	88.8	--
Comp-4(0.0-0.5)	09/30/16	1.12 U	3.37	181	0.438	0.36	16.2	10.3	11.6	19.3	0.138	1.12 U	9.67	1.12 U	0.225 U	0.225 U	50.1	62.9	--
Comp-5(0.0-0.5)	09/30/16	1.16 U	3.48	200	0.557	0.232	18.4	15.8	12.4	11.6	0.0929 U	1.16 U	11.7	1.16 U	0.232 U	0.232 U	60.6	58.0	--
Comp-6(0.0-0.5)	09/30/16	1.13 U	3.45	136	0.465	0.340	19.6	12.2	13.0	10.5	0.0908 U	1.13 U	11.0	1.13 U	0.227 U	0.227 U	65.0	53.5	--
Comp-7(0.0-0.5)	09/30/16	1.17 U	3.24	153	0.468	0.374	19.6	12.9	12.4	17.9	0.0936 U	1.17 U	9.28	1.17 U	0.234 U	0.234 U	57.1	53.1	--
Comp-8(0.0-0.5)	09/30/16	1.13 U	2.26	197	0.418	0.226 U	15.2	11.7	9.38	10.6	0.0903 U	1.13 U	9.31	1.13 U	0.226 U	0.226 U	57.7	58.6	--
Comp-9(0.0-0.5)	09/30/16	1.21 U	3.20	133	0.471	0.241 U	16.5	12.0	12.8	9.90	0.0966 U	1.21 U	9.95	1.21 U	0.241 U	0.241 U	59.1	56.0	--
Sediment Samples from Creek																			
SED-1(0.0-0.5)	10/12/16	0.764 U	3.24	238	0.779	0.764 U	28.3	13.8	13.8	11.4	0.0611 U	1.53 U	14.3	1.53 U	0.764 U	0.764 U	78.1	78.1	--
SED-2(0.0-0.5)	11/17/16	0.724 U	4.66	354	0.789	0.724 U	24.4	37.4	17.0	15.6	0.0579 U	1.45 U	16.2	1.45 U	0.724 U	0.724 U	97.7	109	--
SED-3(0.0-0.5)	11/17/16	0.701 U	2.22	188	0.589	0.701 U	22.1	15.2	12.0	10.9	0.0561 U	1.40 U	11.0	1.40 U	0.701 U	0.701 U	62.0	66.4	--
SED-4(0.0-0.5)	11/17/16	0.780 U	3.46	202	1.03	0.780 U	35.1	23.9	15.3	10.3	0.0624 U	1.56 U	12.4	1.56 U	0.780 U	0.780 U	109	64.7	--
SED-5(0.0-0.5)	11/17/16	0.762 U	4.68	337	1.12	0.762 U	32.5	39.9	15.3	13.9	0.0609 U	1.52 U	15.3	1.52 U	0.762 U	0.762 U	121	83.2	--
SED-6(0.0-0.5)	11/17/16	0.824 U	2.50	203	0.684	0.824 U	25.6	11.5	12.8	10.6	0.0659 U	1.65 U	10.4	1.65 U	0.824 U	0.824 U	68.0	60.8	--
SED-7(0.0-0.5)	11/17/16	0.915 U	2.13	208	0.640	0.915 U	21.9	16.4	11.9	8.59	0.0732 U	1.83 U	9.88	1.83 U	0.915 U	0.915 U	64.2	62.9	--
SED-8(0.0-0.5)	11/17/16	0.882 U	2.06	210	0.582	0.882 U	23.1	15.3	13.2	10.4	0.0706 U	1.76 U	11.8	1.76 U	0.882 U	0.882 U	65.5	66.2	--
SED-9(0.0-0.5)	11/17/16	1.04 U	2.43	179	0.510	1.04 U	17.5	13.4	13.0	10.1	0.191	2.08 U	10.6	2.08 U	1.04 U	1.04 U	68.6	65.2	--
Surface Soil Samples in Vicinities of AST Fueling Areas on Former Tax Lots 1400 and 1402																			
TP-2N(0.0-0.5)	10/12/16	1.26 U	2.88	153	0.478	0.314	15.8	14.3	12.3	13.1	0.101 U	1.26 U	10.5	1.26 U	0.251 U	0.251 U	58.4	61.5	--
TP-2S(0.0-0.5)	10/12/16	1.24 U	2.46	208	0.458	0.247 U	17.7	10.3	15.0	14.4	0.099 U	1.24 U	11.3	1.24 U	0.247 U	0.247 U	50.3	85.7	--
TP-3E(0.0-0.5)	10/12/16	1.35 U	5.83	241	0.541	0.325	19.7	13.9	15.8	32.6	0.108 U	1.35 U	12.5	1.35 U	0.270 U	0.27 U	60.7	93.2	--
TP-3E(1.5-2.0)	10/12/16	1.2 U	5.27	140	0.758	0.289	29.3	12.9	20.2	10.3	0.0963 U	1.2 U	16.7	1.2 U	0.241 U	0.241 U	103	62.4	--
TP-3W(0.0-0.5)	10/12/16	1.26 U	3.15	205	0.403	0.252	20.6	11.8	14.4	21.7	0.101 U	1.26 U	11.6	1.26 U	0.252 U	0.252 U	55.7	77.4	--
TP-3W(1.5-2.0)	10/12/16	1.32 U	6.77	140	0.871	0.317	34.1	17.5	25.0	11.8	0.106 U	1.32 U	19.5	1.32 U	0.264 U	0.264 U	114	67.4	--
Surface Soil Samples in Vicinities of Drum Storage Areas on Former Tax Lots 1400 and 1402																			
TPComp-1(0.0-1.0)	10/12/16	--	11.9	174	--	0.724	25.1	--	--	78.7	0.102 U	--	--	1.27 U	0.254 U	--	--	--	--
TPComp-2(0.0-0.5)	10/12/16	1.22 U	3.00	167	0.462	0.243 U	16.5	14.2	11.9	14.7	0.0972 U	1.22 U	10.4	1.22 U	0.243 U	0.243 U	57.1	54.7	--
TPComp-2(1.5-2.0)	10/12/16	1.34 U	5.53	137	0.873	0.269 U	28.4	18.8	21.2	10.6	0.107 U	1.34 U	16.1	1.34 U	0.269 U	0.269 U	92.8	55.4	--
TPComp-3(0.0-0.5)	10/12/16	1.3 U	2.9	282	0.518	0.441	16.9	15.4	19.0	343	0.104 U	1.3 U	12.9	1.3 U	0.259 U	0.259 U	59.4	141	0.914
TPComp-3(1.5-2.0)	10/12/16	1.16 U	4.46	146	0.647	0.277	24.2	15.6	17.5	13.9	0.0925 U	1.16 U	14.3	1.16 U	0.231 U	0.231 U	88	55.8	--
Subsurface Soil Samples Near Gasoline UST on Former Tax Lot 1400																			
DP-3(10.5-12.5)	10/14/16	--	--	--	--	--	--	--	--	11.4	--	--	--	--	--	--	--	--	--
DP-4(9.0-11.0)	10/14/16	--	--	--	--	--	--	--	--	7.83	--	--	--	--	--	--	--	--	--
DP-9(5.0-6.5)	10/14/16	--	--	--	--	--	--	--	--	9.36	--	--	--	--	--	--	--	--	--
DP-9(9.5-11.0)	10/14/16	--	--	--	--	--	--	--	--	7.31	--	--	--	--	--	--	--	--	--
Surface and Subsurface Soil Samples in Vicinities of Tractor and Maintenance Sheds on Former Tax Lot 1400																			
DP-5(0.5-1.5)	10/14/16	--	3.86	225	--	0.320	23.9	--	--	20.8	0.095 U	--	--	2.37 U	0.237 U	--	--	--	--
DP-6(0.5-2.0)	10/14/16	--	2.70	267	--	0.388	19.1	--	--	44.3	0.097 U	--	--	2.43 U	0.243 U	--	--	--	--
DP-7(4.0-5.5)	10/14/16	--	4.15	130	--	0.264 U	25.5	--	--	9.80	0.106 U	--	--	2.64 U	0.264 U	--	--	--	--

TABLE 2
Summary of Sediment and Soil Sample Chemical Analytical Results¹
Total Metals and TCLP Lead
River Terrace Crossing Area 10 - Southern Parcels
15515, 15685, 15745, and 15915 SW 150th Avenue
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Total Metals EPA Methods 6020A/6020 (ICP-MS) (mg/kg)																	TCLP Lead EPA Methods 1311/6020 (mg/L)
		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
Inadvertently Placed Pesticide-Contaminated Surface Soil - Confirmation Samples																			
TP Comp-4(0-2)	08/24/18	--	--	--	--	--	--	--	--	10.3	--	--	--	--	--	--	--	--	--
TP Comp-5(0-2)	08/24/18	--	--	--	--	--	--	--	--	8.98	--	--	--	--	--	--	--	--	--
TP Comp-6(0-2)	08/24/18	--	--	--	--	--	--	--	--	8.98	--	--	--	--	--	--	--	--	--
TP Comp-7(0-2)	08/24/18	--	--	--	--	--	--	--	--	9.29	--	--	--	--	--	--	--	--	--
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of September 5, 2018)																			
SS-1SE(11.0)	09/05/18	--	--	--	--	--	--	--	--	5.92	--	--	--	--	--	--	--	--	--
SS-2N(10.5)	09/05/18	--	--	--	--	--	--	--	--	6.39	--	--	--	--	--	--	--	--	--
SS-3W(10.0)	09/05/18	--	--	--	--	--	--	--	--	7.66	--	--	--	--	--	--	--	--	--
SS-4E(10.0)	09/05/18	--	--	--	--	--	--	--	--	7.53	--	--	--	--	--	--	--	--	--
SS-5S(7.5)	09/05/18	--	--	--	--	--	--	--	--	9.20	--	--	--	--	--	--	--	--	--
SS-6W(5.0)	09/05/18	--	--	--	--	--	--	--	--	8.64	--	--	--	--	--	--	--	--	--
SS-7E(5.0)	09/05/18	--	--	--	--	--	--	--	--	8.04	--	--	--	--	--	--	--	--	--
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of September 7, 2018)																			
SS-8W(10)	09/07/18	--	--	--	--	--	--	--	--	9.31	--	--	--	--	--	--	--	--	--
SS-9S(10)	09/07/18	--	--	--	--	--	--	--	--	27.1	--	--	--	--	--	--	--	--	--
SS-10E(10)	09/07/18	--	--	--	--	--	--	--	--	8.64	--	--	--	--	--	--	--	--	--
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of September 28, 2018)																			
SS-11E(1.5)	09/28/18	--	--	--	--	1.14	42.8	--	--	10.3	--	--	--	--	--	--	--	--	--
SS-12E(5.5)	09/28/18	--	--	--	--	1.53	34.9	--	--	8.84	--	--	--	--	--	--	--	--	--
SS-13N(2)	09/28/18	--	--	--	--	1.53	40.2	--	--	8.24	--	--	--	--	--	--	--	--	--
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of October 1, 2018)																			
SS-18E(5.5)	10/01/18	--	6.19	174	--	0.962	34.7	--	--	9.91	0.0989 U	--	--	1.24 U	0.247 U	--	--	--	--
Inadvertently Placed Petroleum-Contaminated Soil - Confirmation Samples																			
SS-27(1.5)	10/09/18	--	--	--	--	0.727	28.3	--	--	8.69	--	--	--	--	--	--	--	--	--
SS-28(2)	10/09/18	--	--	--	--	0.646	31.5	--	--	10.2	--	--	--	--	--	--	--	--	--
SS-29(1.5)	10/09/18	--	--	--	--	0.554	29.1	--	--	10.7	--	--	--	--	--	--	--	--	--
SS-30(1)	10/09/18	--	--	--	--	0.633	33.3	--	--	9.77	--	--	--	--	--	--	--	--	--
SS-31(3)	10/09/18	--	--	--	--	0.537	29.6	--	--	9.13	--	--	--	--	--	--	--	--	--
SS-32(2.5)	10/09/18	--	--	--	--	0.821	34.3	--	--	7.86	--	--	--	--	--	--	--	--	--
SS-33(1)	10/09/18	--	--	--	--	0.545	35.2	--	--	9.59	--	--	--	--	--	--	--	--	--
SS-34(0.5)	10/09/18	--	--	--	--	0.575	31.5	--	--	8.39	--	--	--	--	--	--	--	--	--
SS-35(1)	10/09/18	--	--	--	--	0.784	39.1	--	--	15.8	--	--	--	--	--	--	--	--	--
SS-36(1)	10/09/18	--	--	--	--	0.827	44.7	--	--	10.9	--	--	--	--	--	--	--	--	--
SS-37(1)	10/09/18	--	--	--	--	0.461	29.8	--	--	8.66	--	--	--	--	--	--	--	--	--
Former Gasoline UST Remedial Excavation - Stockpile Sample (Waste Profiling)																			
SP-1	09/06/18	--	--	--	--	--	--	--	--	8.50	--	--	--	--	--	--	--	--	--
SP-2	09/27/18	--	--	--	--	0.889	31.5	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 2 Summary of Sediment and Soil Sample Chemical Analytical Results ¹ Total Metals and TCLP Lead River Terrace Crossing Area 10 - Southern Parcels 15515, 15685, 15745, and 15915 SW 150th Avenue Tigard, Oregon																		
Sample I.D. (depth in feet BGS)	Sample Date	Total Metals EPA Methods 6020A/6020 (ICP-MS) (mg/kg)																TCLP Lead EPA Methods 1311/6020 (mg/L)
		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	
Limit for Disposal at RCRA Subtitle D Landfill																		5
DEQ Generic RBCs ²																		
<i>Soil Ingestion, Dermal Contact, and Inhalation</i>																		
Residential	NE	0.43 ³	15,000	160	78	120,000	NE	3,100	400	23	NE	1,500	NE	390	NE	NE	NE	NE
Construction Worker	NE	15	69,000	700	350	530,000	NE	14,000	800	110	NE	7,000	NE	1,800	NE	NE	NE	NE
Excavation Worker	NE	420	>Max	19,000	9,700	>Max	NE	390,000	800	2,900	NE	190,000	NE	49,000	NE	NE	NE	NE
<i>Volatilization to Outdoor Air</i>																		
Residential	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--
<i>Vapor Intrusion Into Buildings</i>																		
Residential	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--
DEQ CFSLs ⁴	0.56	8.8	790	2	0.63	76	43	34	28	0.23	2.1	47	0.71	0.82	5.2	180	180	NE
<div>Notes:</div> <div>1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon.</div> <div>2. DEQ Generic RBCs dated May 2018</div> <div>3. While the detected concentrations of arsenic are greater than this RBC, they are within the range of naturally occurring arsenic concentrations in Oregon soil.</div> <div>4. DEQ CFSLs dated February 21, 2019</div> <div>>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.</div> <div>NV: chemical is considered non-volatile</div> <div>U: Not detected. Reporting or detection limit shown.</div> <div>Bolding indicates analyte detection.</div> <div>Gray shading indicates analyte detection at a concentration greater than DEQ CFSLs.</div> <div>--: not analyzed</div>																		

TABLE 3
Summary of Soil Sample Chemical Analytical Results ¹
Petroleum Hydrocarbons, pH, and Flashpoint
River Terrace Crossing Area 10 - Southern Parcels
15515, 15685, 15745, and 15915 SW 150th Avenue
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Gasoline-Range Hydrocarbons Method NWTPH-Gx (mg/kg)	Diesel- and Oil-Range Hydrocarbons Method NWTPH-Dx (mg/kg)		Soil pH Method 9045D	Flashpoint Method 1010M (F)
			Diesel	Oil		
Surface and Subsurface Soil Samples in Vicinity of HOT on Former Tax Lot 1400						
DP-1(10.0-11.0)	10/13/16	--	2,710	51.2 U	--	--
DP-1(11.0-12.0)	10/13/16	--	1,660	51.3 U	--	--
DP-2(1.0-2.0)	10/14/16	--	6,640	445 U	--	--
DP-2(11.5-12.5)	10/14/16	--	1,690	50.0 U	--	--
DP-8(0.5-2.0)	10/14/16	--	25.0 U	50.0 U	--	--
DP-8(8.5-10.5)	10/14/16	--	27.1 U	54.2 U	--	--
Subsurface Soil Samples Near Gasoline UST on Former Tax Lot 1400						
DP-3(10.5-12.5)	10/14/16	519	--	--	--	--
DP-4(9.0-11.0)	10/14/16	8.23 U	--	--	--	--
DP-9(5.0-6.5)	10/14/16	6.10 U	--	--	--	--
DP-9(9.5-11.0)	10/14/16	8.44 U	--	--	--	--
Surface and Subsurface Soil Samples in Vicinities of Tractor and Maintenance Sheds on Former Tax Lot 1400						
DP-5(0.5-1.5)	10/14/16	5.96 U	25.0 U	50.0 U	--	--
DP-6(0.5-2.0)	10/14/16	6.12 U	25.0 U	57.6	--	--
DP-7(4.0-5.5)	10/14/16	6.87 U	25.0 U	50.0 U	--	--
Surface Soil Samples in Vicinity of ASTs on Former Tax Lots 1400 and 1402						
TP-1N(0.0-0.5)	10/12/16	--	25.0 U	50.0 U	--	--
TP-1S(0.0-0.5)	10/12/16	--	25.0 U	50.0 U	--	--
TP-4N(0.0-0.5)	10/12/16	--	25.0 U	50.0 U	--	--
TP-4S(0.0-0.5)	10/12/16	--	25.0 U	62.3	--	--
Surface Soil Samples in Vicinity of AST Fueling Areas on Former Tax Lots 1400 and 1402						
TP-2N(0.0-0.5)	10/12/16	6.99 U	7,950	929 U	--	--
TP-2N(2.0-2.5)	10/12/16	--	25.0 U	50.0 U	--	--
TP-2S(0.0-0.5)	10/12/16	6.89 U	7,560	220 U	--	--
TP-2S(2.5-3.0)	10/12/16	--	31.1	50.0 U	--	--
TP-3E(0.0-0.5)	10/12/16	6.54 U	25.0 U	50.0 U	--	--
TP-3W(0.0-0.5)	10/12/16	6.83 U	25.0 U	50.0 U	--	--
Surface Soil Samples in Vicinities of Drum Storage Areas on Former Tax Lots 1400 and 1402						
TPComp-1(0.0-1.0)	10/12/16	6.85 U	25.0 U	763	--	--
TPComp-2(0.0-0.5)	10/12/16	6.61 U	61.3	50.0 U	--	--
TPComp-3(0.0-0.5)	10/12/16	12.8	466 U	17,100	--	--
Surface and Subsurface Soil Samples in Vicinity of HOT on Former Tax Lot 1401						
HA-1(0.0-1.0)	10/20/16	--	119	54.7 U	--	--
HA-1(6.5-8.0)	10/20/16	--	24,700	462 U	--	--
HA-1(8.0-8.5)	10/20/16	--	37,800	2,450 U	--	--

TABLE 3
Summary of Soil Sample Chemical Analytical Results ¹
Petroleum Hydrocarbons, pH, and Flashpoint
River Terrace Crossing Area 10 - Southern Parcels
15515, 15685, 15745, and 15915 SW 150th Avenue
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Gasoline-Range Hydrocarbons Method NWTPH-Gx (mg/kg)	Diesel- and Oil-Range Hydrocarbons Method NWTPH-Dx (mg/kg)		Soil pH Method 9045D	Flashpoint Method 1010M (F)
			Diesel	Oil		
HA-2(7.0-8.0)	10/20/16	--	51,900	2,470 U	--	--
HA-2(8.25-8.75)	10/20/16	--	512	50.2 U	--	--
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of September 5, 2018)						
SS-1SE(11.0)	09/05/18	280	--	--	--	--
SS-2N(10.5) ¹	09/05/18	91.1	--	--	--	--
SS-3W(10.0) ¹	09/05/18	86.9	--	--	--	--
SS-4E(10.0)	09/05/18	9.76 U	--	--	--	--
SS-5S(7.5) ¹	09/05/18	6.59 U	--	--	--	--
SS-6W(5.0) ¹	09/05/18	6.87 U	--	--	--	--
SS-7E(5.0)	09/05/18	7.29 U	--	--	--	--
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of September 7, 2018)						
SS-8W(10)	09/07/18	11.3 U	--	--	--	--
SS-9S(10)	09/07/18	8.46 U	--	--	--	--
SS-10E(10)	09/07/18	6.7 U	--	--	--	--
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of September 28, 2018)						
SS-11E(1.5)	09/28/18	6.67 U	25 U	50 U	--	--
SS-12E(5.5)	09/28/18	18	25.4 U	50.8 U	--	--
SS-13N(2)	09/28/18	66.4	35.9	51.4 U	--	--
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of October 1, 2018)						
SS-14S(2)	10/01/18	7.03 U	25.1 U	50.1 U	--	--
SS-15W(2)	10/01/18	6.42 U	25 U	50 U	--	--
SS-16N(5)	10/01/18	9.75 U	30.2 U	60.4 U	--	--
SS-17E(5)	10/01/18	6.62 U	25 U	50 U	--	--
SS-18E(5.5)	10/01/18	7.1 U	25 U	94.8	--	--
SS-19S(4)	10/01/18	6.54 U	25.8 U	51.5 U	--	--
SS-20S(4)	10/01/18	6.74 U	26 U	52.1 U	--	--
SS-21S(4.5)	10/01/18	7.4 U	25 U	50 U	--	--
SS-22W(5)	10/01/18	8.06 U	25.6 U	51.2 U	--	--
SS-23W(4.5)	10/01/18	8.24 U	27.3 U	54.6 U	--	--
SS-24W(3)	10/01/18	7.6 U	25.9 U	51.9 U	--	--
SS-25N(5)	10/01/18	7.29 U	26.5 U	52.9 U	--	--
SS-26N(5.5)	10/01/18	11.1 U	30.3 U	60.6 U	--	--
Former Gasoline UST Remedial Excavation - Stockpile Sample (Waste Profiling)						
SP-1	09/06/18	9.22	--	--	6.26	>150

TABLE 3
Summary of Soil Sample Chemical Analytical Results ¹
Petroleum Hydrocarbons, pH, and Flashpoint
River Terrace Crossing Area 10 - Southern Parcels
15515, 15685, 15745, and 15915 SW 150th Avenue
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Gasoline-Range Hydrocarbons Method NWTPH-Gx (mg/kg)	Diesel- and Oil-Range Hydrocarbons Method NWTPH-Dx (mg/kg)		Soil pH Method 9045D	Flashpoint Method 1010M (F)
			Diesel	Oil		
Inadvertently Placed Petroleum-Contaminated Soil - Confirmation Samples						
SS-27(1.5)	10/09/18	7.11 U	25 U	50 U	--	--
SS-28(2)	10/09/18	7.81 U	25 U	50 U	--	--
SS-29(1.5)	10/09/18	6.97 U	25 U	50 U	--	--
SS-30(1)	10/09/18	7.1 U	25 U	50 U	--	--
SS-31(3)	10/09/18	7.07 U	25 U	50 U	--	--
SS-32(2.5)	10/09/18	9.42 U	25 U	50 U	--	--
SS-33(1)	10/09/18	9.92 U	25 U	50 U	--	--
SS-34(0.5)	10/09/18	6.48 U	25 U	50 U	--	--
SS-35(1)	10/09/18	7.45 U	25 U	50 U	--	--
SS-36(1)	10/09/18	7.15 U	25 U	50 U	--	--
SS-37(1)	10/09/18	6.45 U	25 U	50 U	--	--
DEQ Generic RBCs ²						
Soil Ingestion, Dermal Contact, and Inhalation						
Residential		1,200	1,100	NE	NE	
Construction Worker		9,700	4,600	NE	NE	
Excavation Worker		>Max	>Max	NE	NE	
Volatilization to Outdoor Air						
Residential		5,900	>Max	NE	NE	
Vapor Intrusion into Buildings						
Residential		94	>Max	NE	NE	
DEQ CFSLS ³		31	1,100	NE	NE	

Notes:

1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon.

2. DEQ Generic RBCs dated May 2018

3. DEQ CFSLS dated February 21, 2019

>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.

U: Not detected. Reporting or detection limit shown.

Bolding indicates analyte detection.

Blue shading indicates analyte detection at a concentration greater than one or more DEQ RBCs and CFSLS.

Gray shading indicates analyte detection at a concentration greater than DEQ CFSLS.

--: not analyzed

TABLE 4 Summary of Soil Sample Chemical Analytical Results ¹ PAHs River Terrace Crossing Area 10 - Southern Parcels 15515, 15685, 15745, and 15915 SW 150th Avenue Tigard, Oregon																				
Sample I.D. (depth in feet BGS)	Sample Date	PAHs EPA Method 8270D-SIM (mg/kg)																		
		Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
Surface Soil Samples in Vicinity of ASTs on Former Tax Lots 1400 and 1402																				
TP-1N(0.0-0.5)	10/12/16	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U
TP-1S(0.0-0.5)	10/12/16	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U	0.0116 U
TP-4N(0.0-0.5)	10/12/16	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U	0.0109 U
TP-4S(0.0-0.5)	10/12/16	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0112 U
Surface Soil Samples in Vicinity of AST Fueling Areas on Former Tax Lots 1400 and 1402																				
TP-2N(0.0-0.5)	10/12/16	0.0562 U	0.0562 U	0.0562 U	0.1120 U	0.0562 U	0.0562 U	0.0562 U	0.0562 U	0.1240 U	0.0562 U	0.0562 U	0.0562 U	0.0562 U	0.0562 U	0.0562 U	0.0562 U	0.0562 U	0.177	0.0562 U
TP-2S(0.0-0.5)	10/12/16	0.0556 U	0.0556 U	0.0556 U	0.1560 U	0.0556 U	0.0556 U	0.0556 U	0.0556 U	0.1670 U	0.0556 U	0.0556 U	0.0556 U	0.0556 U	0.0556 U	0.0556 U	0.0556 U	0.0556 U	0.234	0.0556 U
TP-3E(0.0-0.5)	10/12/16	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U
TP-3W(0.0-0.5)	10/12/16	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U
Surface Soil Samples in Vicinities of Drum Storage Areas on Former Tax Lots 1400 and 1402																				
TPComp-1(0.0-1.0)	10/12/16	0.0578 U	0.0578 U	0.0578 U	0.0578 U	0.0578 U	0.0578 U	0.0578 U	0.0578 U	0.0578 U	0.0578 U	0.0578 U	0.0578 U	0.0578 U	0.0578 U	0.105	0.142	0.171	0.139	0.0909
TPComp-2(0.0-0.5)	10/12/16	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U	0.0120 U
TPComp-3(0.0-0.5)	10/12/16	0.114 U	0.114 U	0.136 U	0.709	0.468	0.566	0.219	0.719	0.574	0.114 U	0.114 U	0.848	0.124	0.265	0.665	0.654	0.114 U	0.670	1.66
Surface and Subsurface Soil Samples in Vicinity of HOT on Former Tax Lot 1400																				
DP-1(10.0-11.0)	10/13/16	0.151 U	0.0505 U	0.1060 U	0.0189 U	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0202 U	0.0126 U	0.247	0.0348	0.501	0.0126 U	0.660	0.607	0.208	0.793	0.082
DP-1(11.0-12.0)	10/13/16	0.181 U	0.0735 U	0.1550 U	0.0284 U	0.0129 U	0.0129 U	0.0129 U	0.0129 U	0.0284 U	0.0129 U	0.443	0.0528	0.791	0.0129 U	0.500	0.394	0.142 U	0.794	0.113
DP-2(1.0-2.0)	10/14/16	0.145 U	0.0644 U	0.0488 U	0.0114 U	0.0104 U	0.0104 U	0.0104 U	0.0104 U	0.0135 U	0.0104 U	0.329	0.0104 U	0.302 U	0.0104 U	1.59	2.68	1.350 U	0.383	0.151
DP-2(11.5-12.5)	10/14/16	0.153 U	0.0508 U	0.0394 U	0.0127	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0153 U	0.0127 U	0.216 U	0.0231	0.404	0.0127 U	1.49	1.16	0.391	0.840	0.0427
DP-8(0.5-2.0)	10/14/16	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U
DP-8(8.5-10.5)	10/14/16	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U
Surface and Subsurface Soil Samples in Vicinities of Tractor and Maintenance Sheds on Former Tax Lot 1400																				
DP-5(0.5-1.5)	10/14/16	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U	0.00973 U
DP-6(0.5-2.0)	10/14/16	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0126 U	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0114 U
DP-7(4.0-5.5)	10/14/16	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U	0.0121 U
Surface and Subsurface Soil Samples in Vicinity of HOT on Former Tax Lot 1401																				
HA-1(0.0-1.0)	10/20/16	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U	0.0131 U
HA-1(6.5-8.0)	10/20/16	1.51 U	0.497 U	0.639 U	0.237 U	0.237 U	0.237 U	0.237 U	0.237 U	0.237 U	0.237 U	1.73	0.237 U	2.71	0.237 U	9.66	14.7	4.71	3.71	0.914
HA-1(8.0-8.5)	10/20/16	1.34 U	0.732 U	0.610 U	0.610 U	0.610 U	0.610 U	0.610 U	0.610 U	0.610 U	0.610 U	2.31	0.610 U	2.68 U	0.610 U	11.4	18.4	6.65	3.03	0.891
HA-2(7.0-8.0)	10/20/16	3.86 U	1.49 U	1.68 U	0.622 U	0.622 U	0.622 U	0.622 U	0.622 U	0.622 U	0.622 U	4.88	0.622 U	8.03	0.622 U	26.6	43.3	14.1	11.7	1.88
HA-2(8.25-8.75)	10/20/16	0.0419	0.0190 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0584 U	0.0127 U	0.0937	0.0127 U	0.272	0.486	0.145	0.150	0.0180
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of September 28, 2018)																				
SS-11E(1.5)	09/28/18	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U	0.0108 U
SS-12E(5.5)	09/28/18	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U
SS-13N(2)	09/28/18	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U	0.0127 U

TABLE 4 Summary of Soil Sample Chemical Analytical Results ¹ PAHs River Terrace Crossing Area 10 - Southern Parcels 15515, 15685, 15745, and 15915 SW 150th Avenue Tigard, Oregon																				
Sample I.D. (depth in feet BGS)	Sample Date	PAHs EPA Method 8270D-SIM (mg/kg)																		
		Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of October 1, 2018)																				
SS-18E(5.5)	10/01/18	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U	0.0115 U
Former Gasoline UST Remedial Excavation - Stockpile Sample (Waste Profiling)																				
SP-2	09/27/18	0.0219 U	0.0129 U	0.0129 U	0.0129 U	0.0129 U	0.0129 U	0.0129 U	0.0129 U	0.0129 U	0.0129 U	0.0129 U	0.0129 U	0.0301	0.0129 U	2.75	7.3	4.8	0.0459	0.0129 U
DEQ Generic RBCs ²																				
Soil Ingestion, Dermal Contact, and Inhalation																				
Residential		4,700	NE	23,000	1.1	0.11	1.1	11.0	NE	110	0.11	NE	2,400	3,100	1.1	NE	NE	5.3	NE	1,800
Construction Worker		21,000	NE	110,000	170	17	170	1,700	NE	17,000	17	NE	10,000	14,000	170	NE	NE	580	NE	7,500
Excavation Worker		590,000	NE	>Max	4,800	490	4,900	49,000	NE	490,000	490	NE	280,000	390,000	4,900	NE	NE	16,000	NE	210,000
Volatilization to Outdoor Air																				
Residential		>Max	NE	>Max	>Csat	NV	NV	NV	NE	NV	NV	NE	NV	>Max	NV	NE	NE	6.4	NE	>Csat
Vapor Intrusion into Buildings																				
Residential		>Max	NE	>Max	>Csat	NV	NV	NV	NE	NV	NV	NE	NV	>Max	NV	NE	NE	6.4	NE	>Csat
DEQ CFSLS ³		0.25	120	6.8	0.73	0.11	1.1	11	25	3.1	0.11	0.002	10	3.7	1.1	0.36	11	0.077	5.5	10
Notes: 1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon. 2. DEQ Generic RBCs dated May 2018 3. DEQ CFSLS dated February 21, 2019 >Csat: This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present. >Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario. NV: chemical is considered non-volatile U: Not detected. Reporting or detection limit shown. Bolding indicates analyte detection. Blue shading indicates analyte detection at a concentration greater than one or more DEQ RBCs and CFSLS. Gray shading indicates analyte detection at a concentration greater than DEQ CFSLS. --: not analyzed																				

TABLE 5
Summary of Soil Sample Chemical Analytical Results¹
VOCs
River Terrace Crossing Area 10 - Southern Parcels
15515, 15685, 15745, and 15915 SW 150th Avenue
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	VOCs ² EPA Method 8260B (mg/kg)														
		Benzene	n-butylbenzene	sec-butylbenzene	Toluene	Ethylbenzene	Naphthalene	n-Propylbenzene	MTBE	Isopropylbenzene	1,2,4-TMB	1,3,5-TMB	EDB	EDC	m,p-Xylene	Total Xylenes
Surface Soil Samples in Vicinity of AST Fueling Areas on Former Tax Lots 1400 and 1402																
TP-2N(0.0-0.5)	10/12/16	0.0140 U	0.0699 U	0.0699 U	0.0699 U	0.0350 U	0.1400 U	0.0350 U	0.0699 U	0.0699 U	0.0699 U	0.0699 U	0.0699 U	0.0350 U	0.0699 U	--
TP-2S(0.0-0.5)	10/12/16	0.0138 U	0.0689 U	0.0689 U	0.0689 U	0.0345 U	0.1380 U	0.0345 U	0.0689 U	0.0689 U	0.0689 U	0.0689 U	0.0689 U	0.0345 U	0.0689 U	--
TP-3E(0.0-0.5)	10/12/16	0.0131 U	0.0654 U	0.0654 U	0.0654 U	0.0327 U	0.131 U	0.0327 U	0.0654 U	0.0654 U	0.0654 U	0.0654 U	0.0654 U	0.0654 U	0.0654 U	--
TP-3W(0.0-0.5)	10/12/16	0.0137 U	0.0683 U	0.0683 U	0.0683 U	0.0341 U	0.137 U	0.0341 U	0.0683 U	0.0683 U	0.0683 U	0.0683 U	0.0683 U	0.0683 U	0.0683 U	--
Surface Soil Samples in Vicinities of Drum Storage Areas on Former Tax Lots 1400 and 1402																
TPComp-1(0.0-1.0)	10/12/16	0.0137 U	0.0685 U	0.0685 U	0.0685 U	0.0342 U	0.137 U	0.0342 U	0.0685 U	0.0685 U	0.0685 U	0.0685 U	0.0685 U	0.0342 U	0.0685 U	--
TPComp-2(0.0-0.5)	10/12/16	0.0132 U	0.0661 U	0.0661 U	0.0661 U	0.033 U	0.132 U	0.033 U	0.0661 U	0.0661 U	0.0661 U	0.0661 U	0.0661 U	0.0330 U	0.0661 U	--
TPComp-3(0.0-0.5)	10/12/16	0.0128 U	0.0642 U	0.0642 U	0.0642 U	0.0321 U	0.235	0.0321 U	0.0642 U	0.0642 U	0.0642 U	0.0642 U	0.0642 U	0.0321 U	0.0642 U	--
Subsurface Soil Samples Near Gasoline UST on Former Tax Lot 1400																
DP-3(10.5-12.5)	10/14/16	0.281 U	1.41 U	1.41 U	1.41 U	1.31	2.81 U	2.43	1.41 U	1.41 U	14.2	5.71	1.41 U	0.703 U	4.75	--
DP-4(9.0-11.0)	10/14/16	0.0165 U	0.0823 U	0.0823 U	0.0823 U	0.0411 U	0.165 U	0.0411 U	0.0823 U	0.0823 U	0.0823 U	0.0823 U	0.0823 U	0.0411 U	0.0823 U	--
DP-9(5.0-6.5)	10/14/16	0.0122 U	0.0610 U	0.0610 U	0.0610 U	0.0305 U	0.122 U	0.0305 U	0.0610 U	0.0610 U	0.061 U	0.061 U	0.0610 U	0.0305 U	0.061 U	--
DP-9(9.5-11.0)	10/14/16	0.0169 U	0.0844 U	0.0844 U	0.0844 U	0.0422 U	0.169 U	0.0422 U	0.0844 U	0.0844 U	0.0844 U	0.0844 U	0.0844 U	0.0422 U	0.0844 U	--
Surface and Subsurface Soil Samples in Vicinities of Tractor and Maintenance Sheds on Former Tax Lot 1400																
DP-5(0.5-1.5)	10/14/16	0.0119 U	0.0596 U	0.0596 U	0.0596 U	0.0298 U	0.119 U	0.0298 U	0.0596 U	0.0596 U	0.0596 U	0.0596 U	0.0596 U	0.0298 U	0.0596 U	--
DP-6(0.5-2.0)	10/14/16	0.0122 U	0.0612 U	0.0612 U	0.0612 U	0.0306 U	0.122 U	0.0306 U	0.0612 U	0.0612 U	0.0612 U	0.0612 U	0.0612 U	0.0306 U	0.0612 U	--
DP-7(4.0-5.5)	10/14/16	0.0137 U	0.0687 U	0.0687 U	0.0687 U	0.0344 U	0.137 U	0.0344 U	0.0687 U	0.0687 U	0.0687 U	0.0687 U	0.0687 U	0.0344 U	0.0687 U	--
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of September 5, 2018)																
SS-1SE(11.0)	09/05/18	0.054 U	--	--	0.27 U	0.518	1.02	--	0.27 U	0.27 U	4.99	2.69	0.27 U	0.135 U	--	0.764
SS-2N(10.5) ³	09/05/18	0.0166 U	--	--	0.0831 U	0.0416 U	0.166 U	--	0.0831 U	0.0831 U	0.287	0.417	0.0831 U	0.0416 U	--	0.125 U
SS-3W(10.0) ³	09/05/18	0.0122 U	--	--	0.0609 U	0.186	0.683	--	0.0609 U	0.086	2.58	1.03	0.0609 U	0.0304 U	--	0.518
SS-4E(10.0)	09/05/18	0.0195 U	--	--	0.0976 U	0.0488 U	0.195 U	--	0.0976 U	0.0976 U	0.0976 U	0.0976 U	0.0976 U	0.0488 U	--	0.146 U
SS-5S(7.5) ³	09/05/18	0.0132 U	--	--	0.0659 U	0.033 U	0.132 U	--	0.0659 U	0.0659 U	0.0659 U	0.0659 U	0.0659 U	0.033 U	--	0.0989 U
SS-6W(5.0) ³	09/05/18	0.0137 U	--	--	0.0687 U	0.0343 U	0.137 U	--	0.0687 U	0.0687 U	0.0687 U	0.0687 U	0.0687 U	0.0343 U	--	0.103 U
SS-7E(5.0)	09/05/18	0.0146 U	--	--	0.0729 U	0.0365 U	0.146 U	--	0.0729 U	0.0729 U	0.0729 U	0.0729 U	0.0729 U	0.0365 U	--	0.109 U
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of September 7, 2018)																
SS-8W(10)	09/07/18	0.0227 U	--	--	0.113 U	0.0566 U	0.227 U	--	0.113 U	0.113 U	0.113 U	0.113 U	0.113 U	0.0566 U	--	0.170 U
SS-9S(10)	09/07/18	0.0169 U	--	--	0.0846 U	0.0423 U	0.169 U	--	0.0846 U	0.0846 U	0.0846 U	0.0846 U	0.0846 U	0.0423 U	--	0.127 U
SS-10E(10)	09/07/18	0.0134 U	--	--	0.067 U	0.0335 U	0.134 U	--	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.0335 U	--	0.101 U

TABLE 5
Summary of Soil Sample Chemical Analytical Results¹
VOCs
River Terrace Crossing Area 10 - Southern Parcels
15515, 15685, 15745, and 15915 SW 150th Avenue
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	VOCs ² EPA Method 8260B (mg/kg)														
		Benzene	n-butylbenzene	sec-butylbenzene	Toluene	Ethylbenzene	Naphthalene	n-Propylbenzene	MTBE	Isopropylbenzene	1,2,4-TMB	1,3,5-TMB	EDB	EDC	m,p-Xylene	Total Xylenes
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of September 28, 2018)																
SS-11E(1.5)	09/28/18	0.133 U	0.0667 U	0.0667 U	0.0667 U	0.0334 U	0.133 U	0.0334 U	0.0667 U	0.0667 U	0.0667 U	0.0667 U	0.0667 U	0.0334 U	--	0.0667 U
SS-12E(5.5)	09/28/18	0.136 U	0.0681 U	0.0681 U	0.0681 U	0.0334 U	0.136 U	0.064	0.0681 U	0.0681 U	0.374	0.167	0.0681 U	0.0334 U	--	0.0681 U
SS-13N(2)	09/28/18	0.138 U	0.0688 U	0.0688 U	0.0688 U	0.0344 U	0.138 U	0.0344 U	0.0688 U	0.0688 U	0.242	0.102	0.0688 U	0.0344 U	--	0.0688 U
Former Gasoline UST Remedial Excavation - Confirmation Samples (Interim Limits as of October 1, 2018)																
SS-18E(5.5)	10/01/18	0.142 U	0.071 U	0.071 U	0.071 U	0.0355 U	0.142 U	0.0355 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.0355 U	--	0.071 U
Former Gasoline UST Remedial Excavation - Stockpile Sample (Waste Profiling)																
SP-1	09/06/18	0.016 U	--	--	0.0802 U	0.0401 U	0.16 U	--	0.0802 U	0.0802 U	0.0802 U	0.0802 U	0.0802 U	0.0401 U	--	0.120 U
SP-2	09/27/18	0.199	2.5	0.88	14.2	15	12.7	7.7	0.0725 U	1.63	66.2	19.9	0.0725 U	0.0362 U	--	108.4
DEQ Generic RBCs ⁴																
Soil Ingestion, Dermal Contact, and Inhalation																
Residential		8.2	NE	NE	5,800	34	5.3	NE	250	3,500	430	430	0.16	3.6	NE	1,400
Construction Worker		380	NE	NE	28,000	1,700	580	NE	12,000	27,000	2,900	2,900	9	200	NE	20,000
Excavation Worker		11,000	NE	NE	770,000	49,000	16,000	NE	320,000	750,000	81,000	81,000	250	5,600	NE	560,000
Volatilization to Outdoor Air																
Residential		11	NE	NE	>Csat	36	6.4	NE	340	>Csat	>Csat	>Csat	0.15	3.4	NE	>Csat
Vapor Intrusion into Buildings																
Residential		0.16	NE	NE	>Csat	1.3	6.4	NE	8.5	>Csat	140	98	0.012	0.077	NE	160
DEQ CFSLs ⁵		0.0230	190	350	23	0.22	0.077	72	0.11	96	10	11	0.0012	0.0028	NE	11

Notes:

1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon.

2. Only VOCs detected during this investigation or VOCs of interest from previous investigations are listed. For a complete listing of VOCs, refer to the laboratory report in Appendix G.

3. Soil represented by this sample was over-excavated and disposed of at Waste Management's Hillsboro Landfill.

4. DEQ Generic RBCs dated May 2018

5. DEQ CFSLS dated February 21, 2019

>Csat: This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present.

NV: chemical is considered non-volatile

U: Not detected. Reporting or detection limit shown.

Bolding indicates analyte detection.

Blue shading indicates analyte detection at a concentration greater than one or more DEQ RBCs and CFSLS.

Gray shading indicates analyte detection at a concentration greater than DEQ CFSLS.

--: not analyzed

TABLE 6 Summary of Soil Sample Analytical Results ¹ PCBs River Terrace Crossing Area 10 - Southern Parcels 15515, 15685, 15745, and 15915 SW 150th Avenue Tigard, Oregon								
Sample I.D. (depth in feet BGS)	Sample Date	PCBs EPA Method 8082A (mg/kg)						
		Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
Surface Soil Samples in Vicinity of AST Fueling Areas on Former Tax Lots 1400 and 1402								
TP-2N(0.0-0.5)	10/12/16	0.0113 U	0.0113 U	0.0113 U	0.0113 U	0.0124 U	0.0113 U	0.0113 U
TP-2S(0.0-0.5)	10/12/16	0.0111 U	0.0111 U	0.0111 U	0.0111 U	0.0234 U	0.0223 U	0.0111 U
TP-3E(0.0-0.5)	10/12/16	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U
TP-3W(0.0-0.5)	10/12/16	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U
Surface Soil Samples in Vicinities of Drum Storage Areas on Former Tax Lots 1400 and 1402								
TPComp-1(0.0-1.0)	10/12/16	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U
TPComp-2(0.0-0.5)	10/12/16	0.0112 U	0.0112 U	0.0112 U	0.0112 U	0.0270 U	0.0157 U	0.0112 U
TPComp-3(0.0-0.5)	10/12/16	0.0522 U	0.0113 U	0.1570 U	0.0715 U	0.0828 U	0.379 U	0.139 U
Surface and Subsurface Soil Samples in Vicinities of Tractor and Maintenance Sheds on Former Tax Lot 1400								
DP-5(0.5-1.5)	10/14/16	0.0103 U	0.0103 U	0.0103 U	0.0103 U	0.0103 U	0.0103 U	0.0103 U
DP-6(0.5-2.0)	10/14/16	0.0113 U	0.0113 U	0.0113 U	0.0113 U	0.0113 U	0.0113 U	0.0113 U
DP-7(4.0-5.5)	10/14/16	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U	0.0110 U
DEQ Generic RBCs ²								
Soil Ingestion, Dermal Contact, and Inhalation								
Residential	0.23							
Construction Worker	4.9							
Excavation Worker	140							
Volatilization to Outdoor Air								
Residential	>Csat							
Vapor Intrusion into Buildings								
Residential	>Csat							
DEQ CFSLs ³	1.1	0.0048	0.0048	0.041	0.0073	0.041	0.24	
Notes: 1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon. 2. DEQ Generic RBCs dated May 2018 3. DEQ CFSLs dated February 21, 2019 >Csat: This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present. U: Not detected. Reporting or detection limit shown.								

TABLE 7 Summary of Surface Soil Sample Chemical Analytical Results ¹ Organochlorine Pesticides River Terrace Area 10 - Northern Parcels 15445 - 15475 SW 150th Avenue Tigard, Oregon																							
Sample I.D. (sample depth in feet BGS)	Sample Date	Organochlorine Pesticides EPA Method 8081B (µg/kg)																					
		Aldrin	alpha-BHC	beta-BHC	delta-BHC	gamma-BHC (Lindane)	cis-Chlordane	trans-Chlordane	4,4'-DDD	4,4'-DDE	4,4'-DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin Aldehyde	Endrin Ketone	Heptachlor	Heptachlor Epoxide	Methoxychlor	Chlordane (Technical)	Toxaphene
Surface Soil Samples from Former Agricultural Areas																							
Comp-1(0.0-0.5)	10/24/16	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	19.6	10.4	27.3	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	7.61 U	76.1 U	76.1 U
Comp-2(0.0-0.5)	10/24/16	2.43 U	2.43 U	2.43 U	2.43 U	2.43 U	2.43 U	2.43 U	2.43 U	2.43 U	20.3	6.69	15.3	2.43 U	2.43 U	2.43 U	2.43 U	2.43 U	2.43 U	2.43 U	7.29 U	72.9 U	72.9 U
Comp-3(0.0-0.5)	10/24/16	2.56 U	2.56 U	2.56 U	2.56 U	2.56 U	2.56 U	2.56 U	2.56 U	2.56 U	27.0	13.8	7.25	2.56 U	2.56 U	2.56 U	2.56 U	2.56 U	2.56 U	2.56 U	7.68 U	76.8 U	76.8 U
Comp-4(0.0-0.5)	10/24/16	2.30 U	2.30 U	2.30 U	2.30 U	2.30 U	2.30 U	2.30 U	2.30 U	2.30 U	10.3	4.79	10.3	2.30 U	2.30 U	2.30 U	2.30 U	2.30 U	2.30 U	2.30 U	6.90 U	69.0 U	69.0 U
Comp-5(0.0-0.5)	10/24/16	2.48 U	2.48 U	2.48 U	2.48 U	2.48 U	2.48 U	2.48 U	2.48 U	2.48 U	6.44	3.41	14.0	2.48 U	2.48 U	2.48 U	2.48 U	2.48 U	2.48 U	2.48 U	7.44 U	74.4 U	74.4 U
Sediment Sample from Creek																							
Sed-1(0.0-0.5)	10/24/16	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	2.85 U	8.56 U	85.6 U	85.6 U
DEQ Generic RBCs ²																							
Soil Ingestion, Dermal Contact, and Inhalation																							
Residential	30	NE	NE	NE	490	NE	NE	2,700	1,800	1,900	34	380,000	NE	19,000	NE	NE	110	55	NE	1,700	490		
Construction Worker	1,100	NE	NE	NE	17,000	NE	NE	94,000	66,000	66,000	1,200	1,600,000	NE	80,000	NE	NE	4,000	2,000	NE	61,000	17,000		
Excavation Worker	30,000	NE	NE	NE	470,000	NE	NE	2,600,000	1,800,000	1,800,000	33,000	45,000,000	NE	2,200,000	NE	NE	110,000	56,000	NE	1,700,000	470,000		
Volatilization to Outdoor Air																							
Residential	>Csat	NE	NE	NE	NV	NE	NE	NV	>Csat	NV	NV	>Max	NE	NV	NE	NE	18,000	28,000	NE	>Csat	NV		
Vapor Intrusion into Buildings																							
Residential	>Csat	NE	NE	NE	NV	NE	NE	NV	>Csat	NV	NV	>Max	NE	NV	NE	NE	18,000	28,000	NE	>Csat	NV		
DEQ CFSLS ³	23	6.3	9	NE	9.5	NE	NE	6.3	10	10	4.5	640	NE	1.4	NE	NE	17	4.2	5,100	910	360		
Notes: 1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon. 2. DEQ Generic RBCs dated May 2018 3. DEQ CFSLS dated February 21, 2019 >Csat: This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present. >Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario. NV: chemical is considered non-volatile U: Not detected. Reporting or detection limit shown. Bolding indicates analyte detection. Gray shading indicates analyte detected at a concentration greater than DEQ CFSLS.																							

TABLE 8 Summary of Surface Soil Sample Chemical Analytical Results ¹ Total Metals River Terrace Area 10 - Northern Parcels 15445 - 15475 SW 150th Avenue Tigard, Oregon																		
Sample I.D. (sample depth in feet BGS)	Sample Date	Total Metals EPA Method 6020A (mg/kg)																
		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Surface Soil Samples From Former Agricultural Areas																		
Comp-1(0.0-0.5)	10/24/16	1.33 U	3.42	338	0.598	0.266 U	20.5	15.8	11.6	11.8	0.106 U	1.33 U	14.1	1.33 U	0.266 U	0.266 U	62.6	78.0
Comp-2(0.0-0.5)	10/24/16	1.30 U	2.07	187	0.495	0.260 U	16.6	10.8	10.0	8.61	0.104 U	1.30 U	9.77	1.30 U	0.260 U	0.260 U	51.5	51.0
Comp-3(0.0-0.5)	10/24/16	1.35 U	2.41	284	0.472	0.270 U	15.0	10.8	9.57	9.86	0.108 U	1.35 U	9.92	1.35 U	0.270 U	0.270 U	46.1	52.0
Comp-4(0.0-0.5)	10/24/16	1.28 U	3.41	156	0.525	0.256 U	18.2	14.3	13.0	10.6	0.103 U	1.28 U	12.4	1.28 U	0.256 U	0.256 U	66.6	55.7
Comp-5(0.0-0.5)	10/24/16	1.25 U	2.53	222	0.450	0.250 U	18.2	11.3	10.3	8.70	0.0999 U	1.25 U	11.9	1.25 U	0.250 U	0.250 U	54.8	54.3
Sediment Sample From Creek																		
SED-1(0.0-0.5)	10/24/16	1.58 U	2.14	336	0.583	0.315 U	17.5	10.3	10.9	12.6	0.126 U	1.58 U	10.5	1.58 U	0.315 U	0.315 U	48.8	72.2
DEQ Generic RBCs ²																		
Soil Ingestion, Dermal Contact, and Inhalation																		
Residential	NE	0.43 ³	15,000	160	78	120,000	NE	3,100	400	23	NE	1,500	NE	390	NE	NE	NE	
Construction Worker	NE	15	69,000	700	350	530,000	NE	14,000	800	110	NE	7,000	NE	1,800	NE	NE	NE	
Excavation Worker	NE	420	>Max	19,000	9,700	>Max	NE	390,000	800	2,900	NE	190,000	NE	49,000	NE	NE	NE	
Volatization to Outdoor Air																		
Residential	NE	NV	NV	NV	NV	NV	NE	NV	NV	NV	NE	NV	NE	NV	NE	NE	NE	
Vapor Intrusion into Buildings																		
Residential	NE	NV	NV	NV	NV	NV	NE	NV	NV	NV	NE	NV	NE	NV	NE	NE	NE	
DEQ CFSLS ⁴	0.56	8.8	790	2	0.63	76	43	34	28	0.23	2.1	47	0.71	0.82	5.2	180	180	
Notes: 1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon. 2. DEQ Generic RBCs dated May 2018 3. While the detected concentrations of arsenic are greater than this RBC, they are within the range of naturally occurring arsenic concentrations in Oregon soil. 4. DEQ CFSLS dated February 21, 2019 >Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario. NV: chemical is considered non-volatile U: Not detected. Reporting or detection limit shown. Bolding indicates analyte detection.																		

<div> <div>TABLE 9</div> <div>Summary of Soil Gas Chemical Analytical Results</div> <div>Gasoline-Range Hydrocarbons and VOCs</div> <div>River Terrace Crossing Area 10 - Southern Parcels</div> <div>15515, 15685, 15745, and 15915 SW 150th Avenue</div> <div>Tigard, Oregon</div> </div>															
Sample I.D.	Sample Date	Gasoline-Range Hydrocarbons EPA Method TO-15 (µg/m³)	VOCs EPA Method TO-15 (µg/m³)												
			Acetone	Allyl Chloride	Benzene	Benzyl Chloride	Bromodichloromethane	Bromoform	Bromomethane	1,3-Butadiene	Carbon Disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform
SG-1	11/09/18	1,150	122	1.25 U	3.67	2.08 U	2.68 U	12.4 U	1.55 U	8.85 U	3.46	2.52 U	1.85 U	1.06 U	1.95 U
SG-2	11/09/18	525 B	118	1.25 U	2.12	2.08 U	2.68 U	12.4 U	1.55 U	8.85 U	1.24 U	2.52 U	1.85 U	1.06 U	1.95 U
SG-3	11/09/18	926	172	1.25 U	5.45	2.08 U	2.68 U	12.4 U	1.55 U	15.3	2.75	2.52 U	1.85 U	1.06 U	1.95 U
SG-4	11/09/18	632 B	88.1	1.25 U	3.31	2.08 U	2.68 U	12.4 U	1.55 U	8.85 U	1.89	2.52 U	1.85 U	1.06 U	1.95 U
DEQ Generic RBCs ¹															
Vapor Intrusion into Buildings															
Residential		79,000	NE	NE	72	NE	15	510	1,000	NE	NE	94	10,000	2,100,000	24

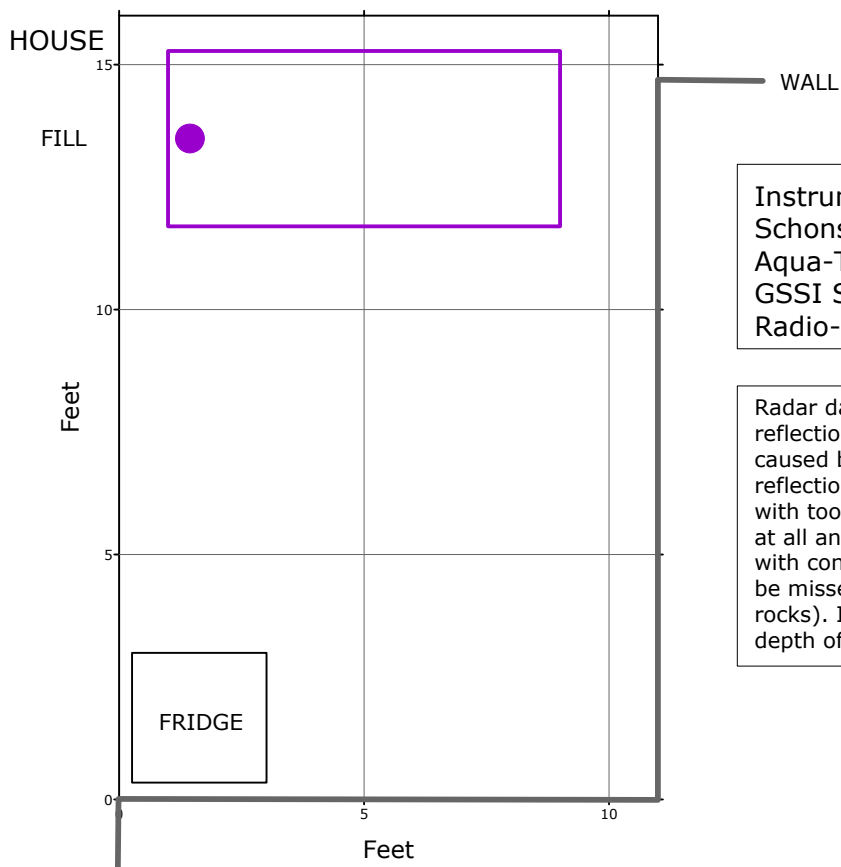
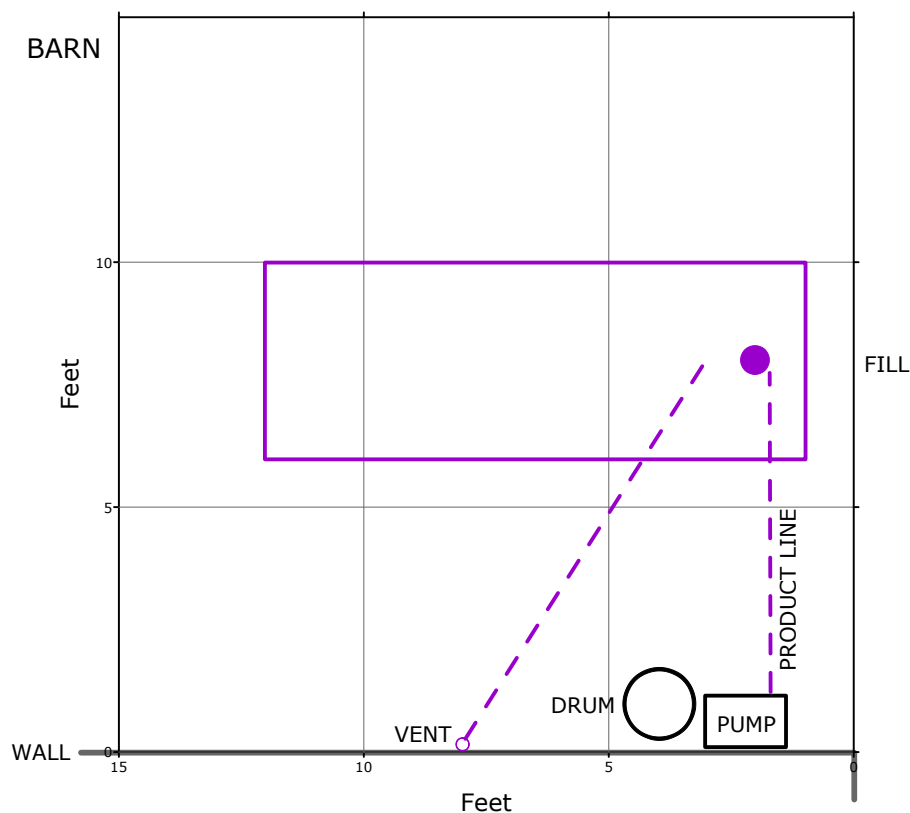
TABLE 9 Summary of Soil Gas Chemical Analytical Results Gasoline-Range Hydrocarbons and VOCs River Terrace Crossing Area 10 - Southern Parcels 15515, 15685, 15745, and 15915 SW 150th Avenue Tigard, Oregon															
Sample I.D.	Sample Date	VOCs EPA Method TO-15 (µg/m³)													
		Chloromethane	2-Chlorotoluene	Cyclohexane	Dibromochloromethane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,2-Dichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane
SG-1	11/09/18	0.902	2.06 U	1.38 U	3.40 U	3.08 U	2.40 U	2.40 U	2.40 U	1.62 U	1.60 U	1.59 U	1.59 U	1.59 U	1.85 U
SG-2	11/09/18	0.973	2.06 U	1.56	3.40 U	3.08 U	2.40 U	2.40 U	2.40 U	1.62 U	1.60 U	1.59 U	1.59 U	1.59 U	1.85 U
SG-3	11/09/18	0.881	2.06 U	1.43	3.40 U	3.08 U	2.40 U	2.40 U	2.40 U	1.62 U	1.60 U	1.59 U	1.59 U	1.59 U	1.85 U
SG-4	11/09/18	0.897	2.06 U	1.38 U	3.40 U	3.08 U	2.40 U	2.40 U	2.40 U	1.62 U	1.60 U	1.59 U	1.59 U	1.59 U	1.85 U
DEQ Generic RBCs ¹															
Vapor Intrusion into Buildings															
Residential		19,000	NE	NE	NE	0.94	42,000	NE	51	22	350	42,000	>Pv	>Pv	NE

<div> <div>TABLE 9</div> <div>Summary of Soil Gas Chemical Analytical Results</div> <div>Gasoline-Range Hydrocarbons and VOCs</div> <div>River Terrace Crossing Area 10 - Southern Parcels</div> <div>15515, 15685, 15745, and 15915 SW 150th Avenue</div> <div>Tigard, Oregon</div> </div>															
Sample I.D.	Sample Date	<div>VOCs</div> <div>EPA Method TO-15</div> <div>(µg/m³)</div>													
		1,3-Dichloropropane	trans-1,3-Dichloropropene	1,4-Dioxane	Ethanol	Ethylbenzene	4-Ethyltoluene	Trichlorofluoromethane	Dichlorodifluoromethane	1,1,2-Trichlorotrifluoroethane	1,2-Dichlorotetrafluoroethane	Heptane	Hexachloro-1,3-butadiene	n-Hexane	iso-Propylbenzene
SG-1	11/09/18	1.82 U	1.82 U	1.44 U	52.6	6.97	2.56	2.25 U	1.98 U	3.07 U	2.80 U	3.64	13.5 U	7.38	1.97 U
SG-2	11/09/18	1.82 U	1.82 U	1.44 U	50.6	1.99	1.96 U	2.25 U	1.98 U	3.07 U	2.80 U	1.83	13.5 U	4.70	1.97 U
SG-3	11/09/18	1.82 U	1.82 U	1.44 U	59.7	1.73 U	1.96 U	2.25 U	1.98 U	3.07 U	2.80 U	6.54	13.5 U	26.1	1.97 U
SG-4	11/09/18	1.82 U	1.82 U	1.44 U	46.0	1.73 U	1.96 U	2.25 U	1.98 U	3.07 U	2.80 U	3.85	13.5 U	11.4	1.97 U
DEQ Generic RBCs ¹															
Vapor Intrusion into Buildings															
Residential		NE	NE	110	NE	220	NE	150,000	NE	6,300,000	NE	NE	NE	NE	83,000

TABLE 9 Summary of Soil Gas Chemical Analytical Results Gasoline-Range Hydrocarbons and VOCs River Terrace Crossing Area 10 - Southern Parcels 15515, 15685, 15745, and 15915 SW 150th Avenue Tigard, Oregon															
Sample I.D.	Sample Date	VOCs EPA Method TO-15 (µg/m³)													
		Methylene Chloride (Dichloromethane)	Methyl Butyl Ketone	2-Butanone (MEK)	4-Methyl-2-pentanone	Methyl methacrylate	MTBE	Naphthalene	2-Propanol	Propene	Styrene	1,1,2,2-Tetrachloroethane	PCE	Tetrahydrofuran	Toluene
SG-1	11/09/18	1.39 U	12.3	188	10.2 U	1.64 U	1.44 U	6.60 U	6.47	70.1	1.70 U	2.75 U	2.72 U	1.19	15.1
SG-2	11/09/18	1.39 U	14.1	224	10.2 U	1.64 U	1.44 U	6.60 U	19.3	82.6	1.70 U	2.75 U	2.72 U	1.18 U	8.29
SG-3	11/09/18	1.39 U	10.2 U	143	10.2 U	1.64 U	1.44 U	6.60 U	132	743	1.70 U	2.75 U	2.72 U	2.80	7.42
SG-4	11/09/18	1.39 U	10.7	162	10.2 U	1.64 U	1.44 U	6.60 U	223	94.6	1.70 U	2.75 U	2.72 U	1.52	5.96
DEQ Generic RBCs ¹															
Vapor Intrusion into Buildings															
Residential		20,000	NE	NE	NE	NE	2,200	17	NE	NE	210,000	NE	2,200	NE	1,000,000

TABLE 9 Summary of Soil Gas Chemical Analytical Results Gasoline-Range Hydrocarbons and VOCs River Terrace Crossing Area 10 - Southern Parcels 15515, 15685, 15745, and 15915 SW 150th Avenue Tigard, Oregon													
Sample I.D.	Sample Date	VOCs EPA Method TO-15 (µg/m³)											
		1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	TCE	1,2,4-TMB	1,3,5-TMB	2,2,4-Trimethylpentane	Vinyl Chloride	Vinyl Bromide	Vinyl Acetate	Total Xylenes	
SG-1	11/09/18	9.33 U	2.18 U	2.18 U	2.14 U	10.4	3.1	1.87 U	1.02 U	1.75 U	1.41 U	48.2	
SG-2	11/09/18	9.33 U	2.18 U	2.18 U	2.14 U	1.96 U	1.96 U	1.87 U	1.02 U	1.75 U	1.41 U	9.97	
SG-3	11/09/18	9.33 U	2.18 U	2.18 U	2.14 U	1.96 U	1.96 U	9.86	1.02 U	1.75 U	1.41 U	6.08	
SG-4	11/09/18	9.33 U	2.18 U	2.18 U	2.14 U	1.96 U	1.96 U	3.12	1.02 U	1.75 U	1.41 U	3.63	
DEQ Generic RBCs ¹													
Vapor Intrusion into Buildings													
Residential		NE	1,000,000	35	95	13,000	13,000	NE	33	NE	NE	21,000	
Notes: 1. DEQ Generic RBCs dated May 2018 B: The same analyte is found in the associated blank. >Pv: The air concentration reported for the RBC exceeds the vapor pressure of the pure chemical. It can be assumed that this constituent cannot create an unacceptable risk by this pathway. U: Not detected. Reporting or detection limit shown. Bolding indicates analyte detection.													

APPENDIX A



Instruments used:
 Schonstedt Magnetic Gradiometer
 Aqua-Tronics EMA6 Tracer
 GSSI SIR2000 GPR system with 270-MHz antenna
 Radio-Detection RD8000PDL Rec./TX3 Transm.

Radar data are ambiguous. It can be difficult to distinguish the reflection produced by an object of interest from the reflection caused by some natural feature. Rocks or tree roots have reflections that appear similar to reflections from pipes. Objects with too small an electrical contrast may produce no reflections at all and may be missed. Target objects buried below objects with contrasting properties that also produce reflections may be missed (e.g. USTs below roots, concrete pieces, pipes or rocks). If an object of interest like a UST is buried below the depth of penetration of the radar signal, it will be missed.



APPENDIX B



Oregon

Kate Brown, Governor

Department of Environmental Quality

Northwest Region

700 NE Multnomah Street, Suite 600

Portland, OR 97232

(503) 229-5263

FAX (503) 229-6945

TTY 711

RECEIVED

MAR 24 2017

GEODESIGN, INC.

RECEIVED

MAR 24 2017

GEODESIGN, INC.

March 23, 2017

Jeremy Zimmer
GeoDesign, Inc.
9450 SW Commerce Circle, Suite 300
Wilsonville, OR 97070

RE: Approval of Contaminated Media Management Plan
for River Terrace Area 10 in Tigard
ECSI #6156

Dear Mr. Zimmer:

The Department of Environmental Quality (DEQ) has completed its review of GeoDesign's *Contaminated Media Management Plan*, dated March 14, 2017, for River Terrace Area 10, located at 15515, 15685, 15745, 15915, and 15955 SW 150th Avenue in Tigard, Oregon.

River Terrace Area 10 is a 37½ acre site, currently consisting of five rural residential properties. Surface soils in the non-forested eastern and southern portions of the site are impacted by residual pesticide contamination from historic farm use activities. Six aboveground storage tanks, three drum storage areas, three tractor sheds, two heating oil tanks, a 1,000-gallon gasoline underground storage tank, and an auto storage/service shop are also present on the non-forested portions of the site. The site will be subdivided and redeveloped into a residential neighborhood with 140 single-family houses.

GeoDesign has proposed to remove the top six inches of soils from across the non-forested portions of the site. The soils, with an estimated volume of 15,117 cubic yards, would be placed into a disposal cell beneath a future neighborhood park in the southwest portion of the site. The disposal cell would extend about 14 feet below ground surface, and would be capped with a geotextile fabric demarcation layer and three feet of clean soils. Additional petroleum-contaminated soils associated with the gasoline and heating oil tanks would be excavated and disposed of off-site during decommissioning of the tanks.

With this understanding, DEQ approves the *Contaminated Media Management Plan* as proposed. Please prepare a final, signed version of the plan. If you have any questions about this letter, please contact me at (503) 229-5369, or via e-mail at dana.kevin@deq.state.or.us. Thank you for your efforts in addressing the contamination at this site.

Sincerely,

Kevin Dana, Project Manager
Northwest Region Cleanup

APPENDIX C



4475 SW Scholls Ferry Rd., #256 ▲ Portland, OR 97225
(503) 291-1454 ▲ Fax 291-5425

March 9, 2018

United Excavators, Inc.
4804 NW Bethany Blvd., Ste. 1-2, PMB 351
Portland, OR 97229

Attn: Brad Taggard

Re: Heating Oil UST Decommissioning & Generic Remedy Cleanup Report
Property Located at 15515 SW 150th Avenue, Tigard, OR

Dear Mr. Taggard:

Enclosed you will find the 'Contractor Certification of Cleanup' for the heating oil UST cleanup completed at the above referenced property. The work was completed by a certified contractor (K&S) following the rules and regulations set forth by DEQ for the decommissioning and cleanup of residential heating oil USTs. The contractor certification has been registered with DEQ by K&S by submitting a copy of the report and the Contractor's Certification of Cleanup to the DEQ, accompanied by a check for \$200.00. Please do not hesitate to call me if you have any questions.

Sincerely,

Bill Knutson, P.E.
Environmental Engineer
Heating Oil Supervisors License No. 17928



4475 SW Scholls Ferry Rd., #256 ▲ Portland, OR 97225
(503) 291-1454 ▲ Fax 291-5425

Heating Oil Tank Service Provider Certification

Tank Owner Name: William Lyons Homes, Inc.
Date of Report Certification: March 9, 2018
Tank Site Address: 15515 SW 150th Avenue, Tigard, OR 97224
Tank Owner Address: 109 E. 13th Street, Vancouver, WA 98660
DEQ Cleanup File Number: 34-18-0269

Type of Project: Generic Remedy Cleanup

K&S Environmental, Inc. has performed heating oil tank services at the above property and certifies that the work performed meets the appropriate requirements of OAR 340-122-205 through 340-122-360 and OAR Chapter 340, Division 177.

Based on information and belief formed after reasonable inquiry, the heating oil tank services performed under this certification were conducted in compliance with all applicable federal, state, and local laws.

K&S Environmental, Inc. is currently insured as required by OAR 340-163-0050.

Signed By: _____

Bill Knutson
Bill Knutson, President

Date Signed: _____

3/09/18

Licensed Service Provider Company Name: **K&S Environmental, Inc.**

Service Provider License Number: **16479**

Expiration Date: **3/15/19**



OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Underground Storage Tank Program

HEATING OIL TANK SERVICES
SERVICE PROVIDER REPORT CERTIFICATION

GENERIC REMEDY HEATING OIL CLEANUP REPORT FORM

Complete this report and submit it to the DEQ Northwest Regional Office (700 NE Multnomah St., Portland, Oregon, 97232) within sixty (60) days from the date the release from a residential heating oil tank is cleaned up. Completion of this report form satisfies the requirements of OAR 340-177-0055. Please read the Generic Remedy Heating Oil Cleanup Report Form *Instructions* (DEQ-06-LQ-007) before completing this report.

General Information

Property Owner Name: William Lyons Homes, Inc. DEQ Cleanup File No.: 34-18-0209

Property Address: 15515 SW 150th Avenue

City/State/Zip Code: Tigard, OR 97224

County: Washington

Owner Phone Number: 503-312-6213

Owner Mailing Address (if different): 109 E. 13th Street, Vancouver, WA 98660

Name of Person Reporting Release: Bill Knutson

Phone Number (if different from Owner): 503-291-1454

3/01/18 Date the release was originally suspected ☐ (e.g. water in tank) or ☒ confirmed (sight, smell, test) (check ☒ one)

3/01/18 Date the release was reported to DEQ. Name of DEQ person contacted: _____
Note: Confirmed releases must be reported within 72-hours by the service provider or the tank owner who performed the work..

3/28/18 Date the tank was ☒ removed or decommissioned ☐ in-place (check ☒ one).

Approximate size of tank: 900 gallons

If the tank was filled in-place, what type of inert fill material was used? _____
How much? _____ gallons _____ lbs. (check ☒ one)

2/28/18 Date cleanup started.

3/09/18 Date cleanup completed.

N/A Approximate square footage of home on property where the release has occurred.

Initial Abatement Information (check ☒ or ☒ the appropriate answer)

1. ☒ Yes ☐ No A visual inspection of the release has been made and immediate actions taken to prevent any further release or migration of heating oil into surrounding soils or groundwater.
2. ☒ Yes ☐ No Any fire, explosion, and/or vapor hazards in soil or groundwater have been identified and mitigated.
☐ Yes ☐ No ☒ NA Monitoring for hazards has continued beyond initial identification. (check ☒ one)

Initial Abatement Information (check ☒ the appropriate answer)

3. ☒ Yes ☐ No ☐ NA As much heating oil and sludge as possible has been removed from the tank.
Gallons removed: 25
Name of oil ☒ recycling or ☐ disposal company (check ☒ one): ORRCO
4. ☒ Yes ☐ No Hazards posed by contaminated soil that has been excavated or exposed have been remedied.
Note: Contaminated soil cannot be stored on-site for more than 30 days without a permit from DEQ.
5. ☐ Yes ☒ No Free product has been observed in the ☐ tank pit and/or ☐ groundwater (Check ☒ any that apply).
Note: Any free product observed must be removed and properly treated/disposed. Use of the Generic Remedy for Heating Oil Tank Releases is not appropriate if free product is present.
6. ☐ Yes ☒ No Groundwater has been encountered during tank decommissioning or cleanup actions taken to-date.
Note: DEQ must be notified immediately when groundwater is encountered at any time.
☐ Yes ☐ No Water in the tank excavation was encountered and pumped out, but did not recharge after 24 hours.
Use of the Generic Remedy for Heating Oil Tank Releases is not appropriate if water recharges into the excavation 24-hours after initial pumping.
7. How was the release initially discovered? (Check ☒ any boxes that are correct)
☒ During tank decommissioning
☐ During a site assessment not associated with tank decommissioning (e.g. for property transaction, etc.)
☐ Other. Describe: _____
8. What observations were made about the tank condition when it was removed from the excavation or decommissioned in-place? Describe: tank had corrosion holes
9. How much contaminated soil was removed? 75.24 ^{tons} ~~cubic yards~~ What was done with the contaminated soil?
(Check ☒ any boxes that apply)
☒ Disposed of at: Hillsboro Landfill (name of disposal company)
☐ Treated off-site at: _____ (name of treatment company)
☐ Treated on-site. ATTACH copy of Solid Waste Letter of Authorization permit approved by DEQ.
☐ Yes ☐ No On-site treatment of contaminated soil is complete. (check ☒ one)
10. How was the cleanup conducted? Describe actions taken during cleanup and note any unusual circumstances:
Decommissioning of UST by removal, Excavation & disposal of contaminated soil
11. Note **highest** TPH soil sample result prior to any excavation of soil: 17000 mg/kg TPH-Dx
12. The following information must be ATTACHED as part of this report (clearly label each attachment as listed below):

Attachment

Label ID

- A** Site map, drawn roughly to scale, showing the location of all buildings on the property and on adjacent properties and the location of the heating oil tank. Include distances in feet between objects.
- B** Sketch of the property that clearly shows the sample locations and depths of all soil samples collected and identifies each location and sample with a unique sample identification code. An additional cross-section diagram may be necessary to clearly show sample locations at-depth.
- C** Copies of chain-of-custody forms for all soil samples collected.
Note: Chain-of-custody forms should include the date, time, and location of each sample collected; the name and company of the person collecting the samples; a description of how the samples were collected, stored, and shipped to the laboratory; and note any problems encountered during the cleanup or sampling process that may have affected sample integrity. Forms should clearly state the address of where samples were collected as a unique identifier.
- D** Copies of all laboratory data reports. Test methods used, including method reporting limits, must be included. Include data for all samples, even if data is not used in summary (question #13).

- E Copies of all receipts or permits related to the disposal of any ☒ oil / sludge, ☐ free product, ☐ water pumped from the excavation, ☒ contaminated soil, and/or decommissioned ☒ tank and ☒ piping (check ☐ all that apply).
- F Any photographs taken at the time of the heating oil tank decommissioning and cleanup that depict major activities (e.g. tank as it is removed to note presence or absence of pits or holes, contaminated soil handling, excavation, tank/excavation in relation to home, unusual circumstances, etc.)
13. Provide a summary of the concentrations measured in the FINAL round of soil samples from each sample location that clearly show the extent and magnitude of the contamination.
Note: Write in the specific unit of measurement for each contaminant if different. Write in "N/A" if sample not analyzed for TPH-Dx constituents. Use additional pages as necessary to report final summary results.

Sample ID	Location ID	TPH-Dx Conc.	Benzene Conc.	Ethylbenzene Conc.	Naphthalene Conc.
		mg/kg	ppm	ppm	ppm
		mg/kg	ppm	ppm	ppm
		mg/kg	ppm	ppm	ppm
		mg/kg	ppm	ppm	ppm
		mg/kg	ppm	ppm	ppm
		mg/kg	ppm	ppm	ppm

See Attached Report

Final Report Checklist and Signature

All of the following boxes must be checked indicating that the action has been taken and/or procedures followed correctly. **Completing this information does not substitute for service provider checklist certification requirements in OAR Chapter 340, Division 163.** The person signing this report must ensure that this information is correct. "Guidance" refers to the Heating Oil Tank Generic Remedy Guidance Document.

- ☒ The cleanup project is for a release from a residential underground heating oil tank (a tank used primarily for single-family dwelling purposes; OR
- ☐ The cleanup project is for a commercial underground heating oil tank. On a separate attachment, describe why use of the generic remedy for residential tanks is appropriate to use for the commercial tank.
- ☐ A verbal report of the discovery of contamination from a leaking heating oil tank was made to the appropriate DEQ regional office.
- ☒ The underground tank was decommissioned following the procedures in Appendix 2 of the Guidance.
- ☒ A site assessment was conducted and the magnitude and extent of the contamination was determined in accordance with the procedures outlined in Appendix 3 of the Guidance.
- ☒ All samples were collected in accordance with methods described in OAR 340-122-0345.
- ☒ This project meets all of the Qualifying Criteria set forth in Section 2 of the Guidance.
- ☒ This project meets Remedial Action Alternative 1 of the Guidance; OR
- ☐ This project meets Remedial Action Alternative 2 of the Guidance.

"By my signature below, I state that the information contained in this report is true and complete to the best of my knowledge."

Name of person preparing report: Bill Knutson ☒ Licensed Cleanup Supervisor?

Signature: Bill Knutson (please print) (if yes, check ☒ box) Date: 3/09/18

Supervisor License No.: 17928 Expiration Date: 8/17/18

Licensed Heating Oil Tank
Service Provider Company: K&S Environmental, Inc.

Company License Number: 16479 Expiration Date: 3/15/19

☒ Yes ☐ No Additional information is included. If yes, write in attachment label(s): _____
(check ☒ one)

NOTE: If cleanup work and report documentation was conducted by the homeowner, on a separate sheet of paper, describe how you learned how to perform the cleanup work.



OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Underground Storage Tank Program

HEATING OIL TANK SERVICES
SERVICE PROVIDER REPORT CERTIFICATION

CLEANUP CHECKLIST

This checklist is divided into five sections. **Section A must be completed for all cleanup projects.** Complete Sections B, C, D, or E as appropriate for the type of cleanup option selected. The checklist must be filled out as completely as possible and any exceptions noted for the certification to be valid.

GENERAL INFORMATION

Tank Owner Name: William Lyons Homes, Inc.

Tank Site Address: 15515 SW 150th Avenue
Tigard, OR 97224

DEQ Cleanup File Number: 34-18-0209

Date Release Reported: 3/01/18

Licensed HOT Service
Provider Company Name: K+S Environmental, Inc.

16479
License Number

3/15/19
Expiration Date

✓ **Check each item as complete and correct.** By checking any of the boxes in this checklist, you are indicating that the statement applies to this project. If there are any exceptions to the statement, please note them in the comment area provided at the end of the checklist. If the statement does not apply, please do not check the box.

NOTE: TPH = Total Petroleum Hydrocarbons as diesel by method NWTPH-Dx

Note: The submittal of this checklist does not replace a final cleanup report

This checklist MUST be signed and dated on page 4

SECTION A - ALL CLEANUP PROJECTS

- ☒ A1. The release of petroleum was reported to DEQ (OAR 340-163-0020(4)).
- ☒ A2. No free product is present or was removed during initial abatement actions.
- ☐ A3. Water is present at the site and DEQ was notified. Please note the name of the DEQ Staff person notified and the date of notification _____

- ☒ A4. A site sketch, drawn approximately to scale, is included in the report (OAR 340-122-0345) which clearly shows:

- ☒ The location of all buildings and other key features, both man-made and natural;
- ☒ The names of adjacent streets and properties;
- ☒ The location of all excavations including those that were for the removal of tanks and associated piping as well as those that were strictly for the removal of contaminated soils;
- ☒ The location of all identified underground storage tanks, including those that were decommissioned as well as those that remain on the site in the vicinity of the cleanup;
- ☒ All soil and water sample locations including sample depths and analytical results; and
- ☒ Location of remaining contaminated soil (for risk-based decision making and generic remedy only).

- ☒ A5. All soil and/or water samples have been properly collected, coded, stored, shipped, and analyzed as required, and chain-of-custody forms have been filled out (OAR 340-122-0218, 340-122-0340 and 340-122-0345).

CHECK EITHER A6a or A6b, NOT BOTH

- ☒ A6a. Petroleum-contaminated soil has been removed from the property and properly handled, disposed of, or treated.

Amount of soil taken off-site for treatment/disposal: 75.24 tons

Disposal/treatment location: Hillsboro Landfill

- ☐ A6b. No petroleum-contaminated soil removal occurred.

- ☒ A7. A report has been prepared which includes a detailed description of everything that was observed and performed at the site and contains all of the information required by (check one):

- ☐ OAR 340-122-0360 and OAR 340-177-0055
- ☒ DEQ's "Heating Oil Tank Generic Remedy Guidance Document" (January 24, 2000)
- ☐ DEQ's "Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites" (September, 2003)

For Soil Matrix cleanup project, complete Section B.



For Generic Remedy cleanup project, complete Section C.



For Risk-Based cleanup project (simple, soil-only), complete Section D.



Complete Section E for:

All sites where groundwater is encountered and soil matrix standards for closure are not met.
All sites where heating oil tank constituent concentrations exceed the risk based concentrations in
Appendix A of the DEQ's "Risk-Based Decision Making for the Remediation
of Petroleum-Contaminated Sites" (September, 2003).

SECTION B - SOIL MATRIX CLEANUP

- ☐ B8. No contaminated soil exceeding the soil matrix level established for this site remains onsite. If a pocket of contamination exceeding the matrix level remains, use the appropriate checklist in Section C, D, or E instead.

CHECK EITHER B9a or B9b, NOT BOTH

- ☐ B9a. TPH concentrations were all below 100 mg/kg.
- ☐ B9b. TPH concentrations greater than 100 mg/kg remain in the soil and a Matrix Score Sheet has been completed. Supporting documentation for the matrix evaluation is included in the report. This project is a (check one):
- ☐ Level 2 site (500 ppm TPH)
- ☐ Level 3 site (1,000 ppm TPH)

- ☐ B10. Groundwater was encountered, but no benzene, toluene, ethylbenzene, and total xylenes (BTEX) or polynuclear aromatic hydrocarbons (PAHs) were detected in water above risk-based concentrations. No BTEX was detected in soil samples collected from the soil/water interface pursuant to OAR-340-122-340.

SECTION C - GENERIC REMEDY

- ☒ C8. Contamination is limited to soil only, and the remaining contaminated soil is a minimum of 25 feet above the seasonal high groundwater level.
- ☒ C9. The magnitude and extent of contamination has been clearly delineated both horizontally and vertically to at least 500 mg/kg TPH.
- ☒ C10. The volume of contaminated soil remaining in the subsurface above 500 mg/kg TPH is less than 65 cubic yards. Volume calculations are included in the cleanup report.
- ☒ C11. Any contaminated soil left in place is deeper than 3 feet below ground surface.
- ☒ C12. The maximum heating oil TPH concentration remaining in the soil is less than 10,000 mg/kg. The maximum TPH concentration detected remaining in the soil is 1200 (mg/kg).
- ☐ C13. Contaminated soil left in place is greater than 2,500 mg/kg TPH. A representative soil sample was collected from the most contaminated soil remaining at the site and analyzed for benzene, ethylbenzene and naphthalene. No benzene detected in the soil in excess of 0.1 ppm, no ethylbenzene detected in soil in excess of 0.82 ppm and no naphthalene in soil in excess of 6.5 ppm.

SECTION D - SOIL ONLY RISK-BASED EVALUATIONS

- ☐ D8. Contamination is limited to soil only. The magnitude and extent of heating oil contamination (as TPH), has been clearly delineated vertically and horizontally (OAR 340-122-0240). *Note: It is often a site-by-site decision on the adequacy of this determination. Contact the Department if there are questions on this issue.*
- ☐ D9. A sample representative of the most contaminated soil remaining at the site was obtained and analyzed. No BTEX or PAHs were detected in the soil in excess of any risk-based concentration in DEQ's "Risk-Based Decision Making for the Remediation of Petroleum Contaminated Sites" (September 2003) guidance document.

**SECTION E - GROUNDWATER AND
COMPLEX RISK-BASED EVALUATIONS**

*Note: These certifications are complex and may require Department involvement.
Please contact the Department for assistance as appropriate.*

- ☐ E8. The magnitude and extent of heating oil contamination as TPH in soil, and BTEX & PAHs in groundwater, have been clearly delineated vertically and horizontally (OAR 340-122-0240). *Note: It is often a site-by-site decision on the adequacy of this determination. Contact the Department if there are questions on this issue.*
- ☐ E9. A mass balance calculation for vapor intrusion into the structure of benzene was performed using the air screening model posted on the Department's web page @ www.deq.state.or.us/lq/tanks/hot/screeningmodel.htm.
- ☐ E10. A detailed risk based evaluation has been conducted and the site has been found to be in compliance with OAR 340-122-0205 through 340-122-260. A detailed report documenting the finding has been prepared.

General

Comments: _____

SIGNATURE

Licensed HOT

Supervisor Name: Bill Knutson
(please print)

17928
License Number

8/17/18
Expiration Date

Check the correct box for each section completed in this checklist:

☒ Section A AND ☐ Section B OR ☒ Section C OR ☐ Section D OR ☐ Section E

"By my signature below, I state that the information contained in this checklist is true and complete to the best of my knowledge."

Supervisor Signature: Jim [Signature]

Date: 3/09/18

Note: If more than one supervisor was involved with the project, please add a second sheet with the license information and a signature block.



OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Underground Storage Tank Program

HEATING OIL TANK SERVICES
SERVICE PROVIDER REPORT CERTIFICATION

PROJECT COST SUMMARY

This form must be completed by the licensed service provider for each certified heating oil tank project submitted to DEQ.

This summary must be included with the project certification cover sheet, checklist, and decommissioning or cleanup report. Upon receipt, DEQ will separate this form from the report and compile the project cost information for future reference. *This form is used to record general information only and is not part of the individual file for any specific project.*

Complete the following information for Questions 1 through 5:

1. **Date** the heating oil project was complete: 3/09/18
2. **County** the tank site is located in: Washington
3. Project **cost** (what did it cost to perform the services listed below): ≈ \$10,000
4. **Type** of certification category (check one):
 - ☐ Decommissioning only
 - ☐ Soil Matrix Cleanup
 - ☒ Generic Remedy Cleanup
 - ☐ Risk-Based Cleanup
5. Rate the general **complexity** of the project as compared to other similar projects of the same category that your company has worked on:
 - ☒ Normal
 - No unusual circumstances
 - ☐ Moderate
 - Some difficulties encountered
 - ☐ Difficult
 - Problems encountered that caused increased work or other complexities



4475 SW Scholls Ferry Rd., #256 ▲ Portland, OR 97225
(503) 291-1454 ▲ Fax 291-5425

March 8, 2018

United Excavators, Inc.
4804 NW Bethany Blvd., Ste. 1-2, PMB 351
Portland, OR 97229

Attn: Brad Taggard

Re: Heating Oil UST Decommissioning & Generic Remedy Cleanup Report
Property Located at 15515 SW 150th Avenue, Tigard, OR

Dear Mr. Taggard:

This report presents the procedures, methods and results of soil sampling, tank decommissioning and soil cleanup activities performed by K&S Environmental, Inc. (K&S) at the above referenced property. The work was completed as part of the decommissioning and soil cleanup of a 900 gallon heating oil (H/O) underground storage tank (UST) formerly used for heating the former residence on site. All the buildings at the site had been demolished as part of a large residential development currently under way along the west side of SW 150th Avenue in Tigard, OR. The tank was located and removed by United Excavators under the supervision of a K&S Licensed Supervisor. Contaminated soil was excavated and the site was closed under DEQ's Generic Remedy Guidelines.

Procedures

K&S visited the site on February 28, 2018 to supervise the decommissioning by removal of a 900 gallon heating oil UST at the site. The tank was exposed and an access hole was cut in the tank top by K&S. All product was removed from the tank and the tank interior was wiped clean and dry. All waste was drummed and taken to ORRCO's permitted facility located at 4150 N. Suttle Rd. in Portland, OR where it was recycled. A receipt for the disposal of the tank contents is included in this report. Subsequent to emptying and cleaning the tank, the tank was removed from the ground and hauled off site to Far West Metals Recycling in Tualatin, OR where it was disposed of as steel salvage. A receipt for the disposal of the tank is included in this report. Subsequent to removal of the tank, K&S collected a single soil sample from native soil beneath the bottom of the tank. The sample was preserved and analyzed for total petroleum hydrocarbons (TPH) by Apex Laboratories in Tigard, OR.

Based on the result of the initial soil sample collected beneath the tank, K&S returned to the site on March 3, 2018 and proceeded to excavate obviously contaminated soil detected beneath the tank. The contaminated soil was loaded into dump trucks and then transported under permit to Hillsboro Landfill in Hillsboro, OR. Based upon field observations, a total of 5 soil samples were collected from the remaining in situ soil in the remedial excavation. All the soil samples were preserved and taken to an independent laboratory for TPH analysis. Based upon the results

of the soil samples collected on 3/05/18, K&S returned to the site on 3/06/18 to excavate additional contaminated soil from the west wall.

Soil sample C1 was collected from the final excavation floor at a depth of 13 feet, and represents the worst case soil remaining at the site with a concentration of 1200 ppm TPH. Samples C2, C4, and C6 were collected from final north, east, south and west walls at a depth of 10-11 feet and contained 667 ppm, 148 ppm, 1070 ppm and <27.5 ppm TPH, respectively. Samples C3 and C6 represent the lateral extent of the remaining contaminated soil in the east and west directions, respectively. Sample P1S was collected from the obviously contaminated soil directly beneath the tank, and represents the worst case soil prior to excavation. Based upon the analytical results of soil samples collected from the final remedial excavation, United Excavators backfilled the excavation with clean dirt. The soil samples collected from the final remedial excavation did not contain diesel contamination above 2500 ppm TPH, and no additional analyses were performed on the most highly contaminated sample remaining at the site (C1 at 1200 ppm).

Based upon the results of the soil sampling completed at the site, it is estimated that the remaining soil contamination in excess of 500 ppm TPH extends no greater than 1 additional vertical foot and no more than 1 additional lateral foot in the north and south directions is limited to the 9-14 foot depth interval.

Chemical Results

All soil samples were analyzed for heating oil using DEQ approved method NWTPH-Dx. The locations of all samples collected by K&S at the site are noted on the attached site map. The location and results of all soil samples are summarized in the following table. Complete certified analytical reports with chain of custody documentation are included with this report.

Table 1
TPH Results of Confirmation Samples Collected by K&S on 2/28/18-3/06/18

Sample ID	Location, Depth	NWTPH-Dx
PS1 (removed)	Under UST, 6 ft.	17,000 ppm
C1	Excavation Floor, 13 ft.	1200 ppm
C2	North Wall, 10 ft.	677 ppm
C3	East Wall, 10 ft.	148 ppm
C4	South Wall, 10 ft.	1070 ppm
C5 (removed)	West Wall, 10 ft.	6240 ppm
C6	West Wall, 11 ft.	ND

ppm - parts per million

ND - None detected at or above reportable levels

Volume of Remaining Impacted Soil

Based upon the results of the final soil samples collected at the site, it is estimated that a maximum volume of 17.1 cubic yards of diesel contaminated soil in excess of 500 parts per million remains at the site in the 9-14 foot depth interval. The maximum concentration of the remaining impacted soil is 1200 ppm TPH and the contamination encompasses an approximate area of 15 feet by 15 feet, or 225 ft². The calculations for this volume are presented below.

Vertical Rate of Reduction

Sample PS1 collected at 6 feet = 17,000 ppm; Sample C1 collected at 13 feet = 1200 ppm
 $(17,000 - 1200) / 7 \text{ ft.} = 2257 \text{ ppm / vertical foot.}$

Estimated Depth Interval of Remaining Contamination on the Floor ~ 14 ft. – 13 ft. = 1 foot

Estimated Area of Remaining Contamination = 15 foot x 15 ft. = 225 ft².

Total volume of remaining impacted soil on the exc. floor = 1 ft. x 225 ft² = 225 ft³ = 8.3 cy

Lateral Rate of Reduction to the North

Sample PS1 collected at 6 feet = 17,000 ppm; Sample C2 collected 5 ft. north of PS1 = 677 ppm
(17,000 – 677) / 5 ft. = 3265 ppm / lateral foot.

Estimated Depth Interval of Remaining Contamination on N. Wall ~ 13 ft. – 9 ft. = 4 feet

Estimated Area of Remaining Contamination = 2 feet by 15 ft. = 30 ft².

Total volume of remaining impacted soil on the S. Wall = 4 ft. x 30 ft² = 120 ft³ = 4.4 cy

Lateral Rate of Reduction to the South

Sample PS1 collected at 6 feet = 17,000 ppm; Sample C2 collected 5 ft. south of PS1 = 1070 ppm
(17,000 – 1070) / 6 ft. = 2655 ppm / lateral foot.

Estimated Depth Interval of Remaining Contamination on S. Wall ~ 13 ft. – 9 ft. = 4 feet

Estimated Area of Remaining Contamination = 2 foot by 15 ft. = 30 ft².

Total volume of remaining impacted soil on the S. Wall = 4 ft. x 30 ft² = 120 ft³ = 4.4 cy

Total Volume of Remaining Contamination with concentrations less than 1200 ppm TPH = 8.3 + 4.4 + 4.4 = 17.1 cy

Sampling Protocol

The soil samples collected from the UST excavation floor and sidewalls were collected directly off the excavator bucket or with a clean shovel. All soil samples obtained during the project were collected using disposable nitrile gloves and placed into clean EPA approved 4 ounce glass containers. The containers were labeled and immediately placed on ice for transport to the laboratory accompanied by chain of custody documentation. The excavation was backfilled with clean overburden soil and sloped for safety purposes.

Waste Disposal

A total of 75.24 tons of diesel contaminated soil was removed from the site and disposed of under permit at Hillsboro Landfill in Hillsboro, OR. Copies of the soil disposal receipts are included with this report.

A total of 25 gallons of emulsified oil and water was generated during the decommissioning of the tank. The waste was placed in a 55 gallon drum and then taken to ORRCO of Portland, OR where it was recycled. A copy of the disposal receipt is included in this report.

The cleaned tank was transported to Far West Recycling, Inc. in Tualatin, OR where it was disposed of as steel salvage scrap metal. A copy of the tank disposal receipt is included with this report.

Subsurface Conditions

Soil encountered during the course of work at the site consists of brown silty clay from the surface to a depth of approximately 8 feet. Beginning at approximately 8 feet, the soil consists of weathered fractured basalt and boulders to the total depth explored of 13 feet. The rock layer made excavation of additional soil extremely difficult. The impacted soil directly beneath the tank displayed dark gray discoloration and moderate diesel odor. No groundwater was

encountered during the completion of the work at the site. Groundwater is expected to be greater than 100 feet below the surface at the site. The local topography at the site slopes significantly in the south southwest direction.

Conclusions

On February 28, 2018, K&S Environmental, Inc. decommissioned by removal one 900 gallon single wall steel heating oil UST from the property located at 15515 SW 150th Avenue in Tigard, OR. Diesel contaminated soil was encountered beneath the tank and excavation of diesel contaminated soil was performed.

K&S excavated approximately 75.24 tons of diesel contaminated soil from beneath and adjacent to the excavated tank. Excavation of contaminated soil at the site continued until it appeared that no diesel contamination remained in excess of acceptable standards. Chemical analyses of the confirmation soil samples collected by K&S indicate slightly elevated levels of TPH as diesel remained at the site. Since the highest remaining concentration was less than 2500 ppm, additional constituent testing on the most highly contaminated soil remaining at the site was not necessary. It was determined through an extrapolation exercise that the vertical extent of the remaining impacted soil was limited to 14 feet and the lateral migration of contaminants in the north and south directions was limited to less than approximately 1-2 additional lateral feet.

Based upon the results of the soil sampling completed by K&S during cleanup activities, the site qualifies for regulatory closure under DEQ's 'Heating Oil Tank Generic Remedy Guidance Document' rules, and no further work regarding the decommissioned heating oil UST at the site appears warranted.

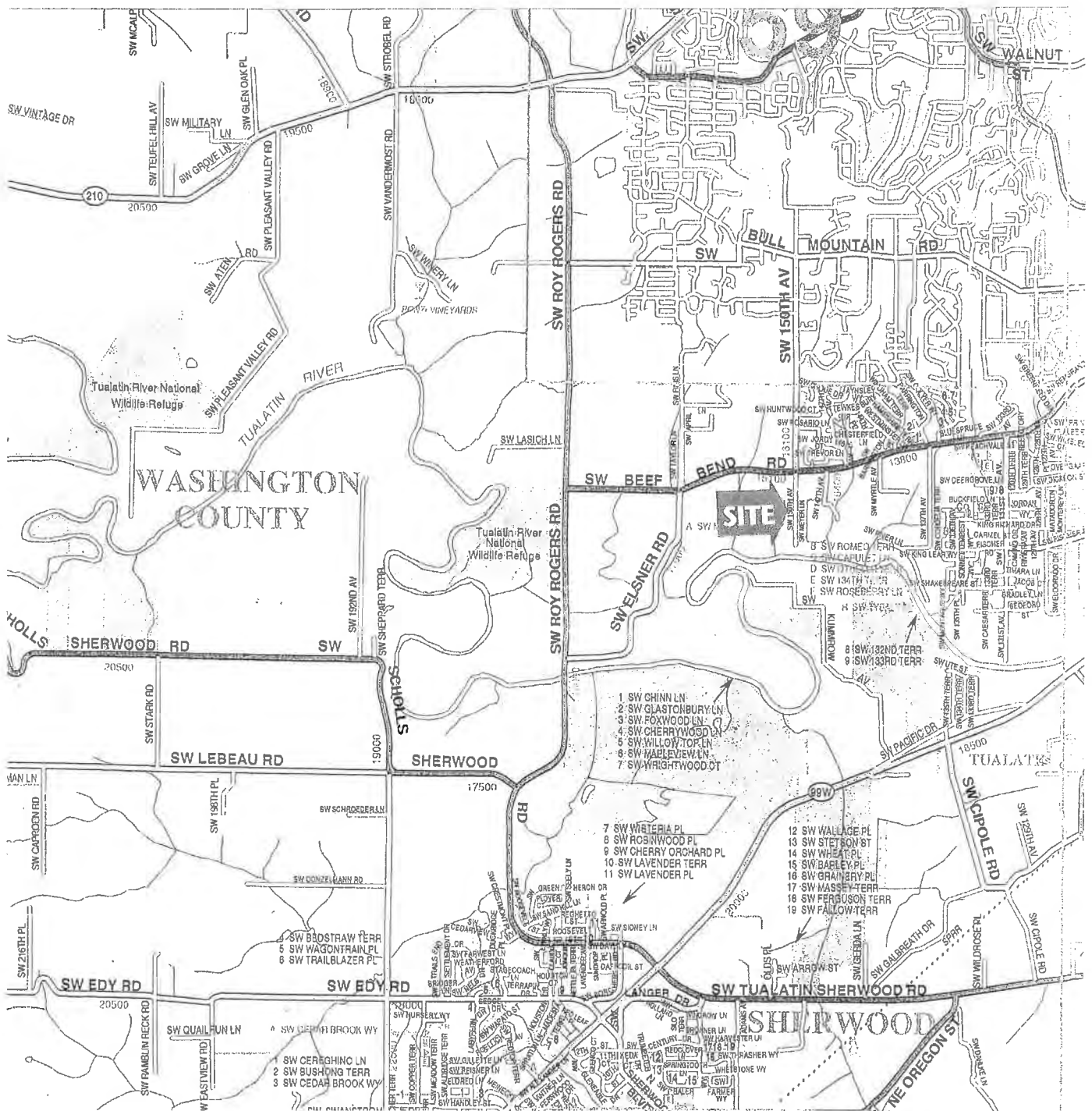
Included with this report are completed copies of the ODEQ "Cleanup Checklist" and 'Generic Remedy Heating Oil Cleanup Report Form', K&S Environmental, Inc.'s Service Provider's Heating Oil UST Cleanup Certification and Project Cost Summary. **This report and contractor certification has been registered with DEQ by K&S by submitting a copy of this report and certification papers along with \$200.00 to the DEQ's Northwest Regional office.**

Please review the findings presented in this report and contact me with any questions or concerns you may have.

Sincerely,



Bill Knutson, P.E.
Environmental Engineer
Heating Oil Supervisor License #17928



Vicinity Map

United Excavators
15515 SW 150th Avenue
Tigard, OR

K&S
Environmental
Inc.

Date: 3/08/18
Project: #5978

Site
United Excavators
15515 SW 150th Ave.
Tigard, OR

K&S Environmental, Inc.

Job#5978
Date: 3/08/18
Scale: 1" ~ 40'

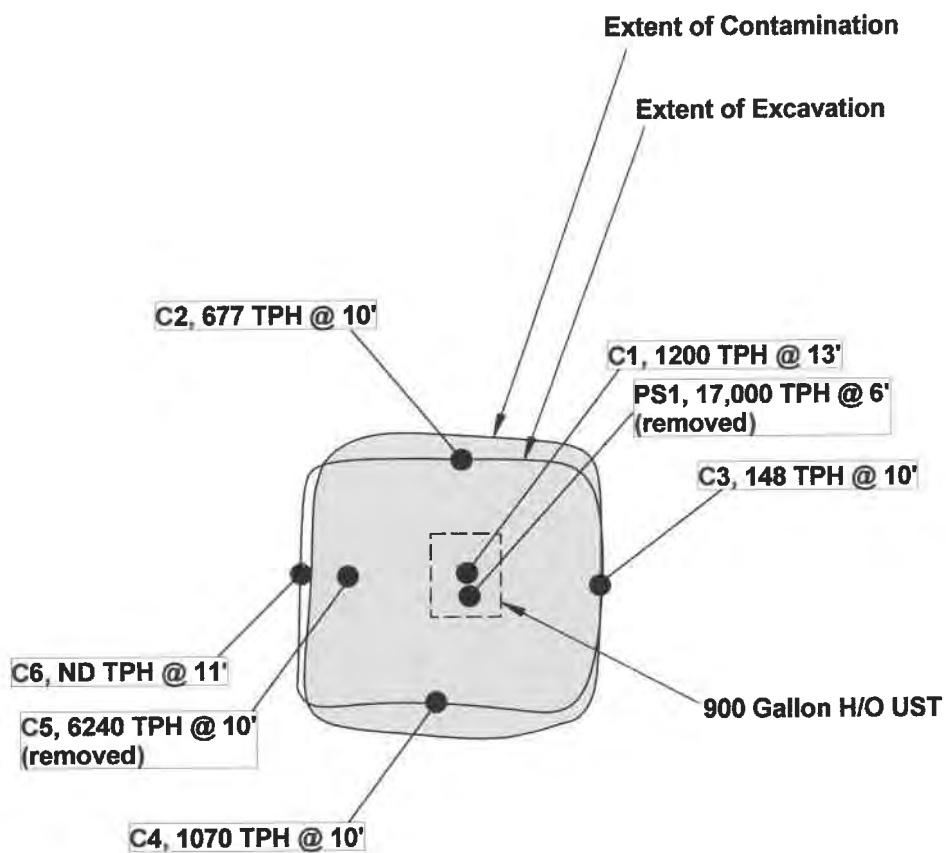
900 Gallon H/O UST

SW 150th Avenue

SW Woodhue Street

Google earth

N



Site Map

United Excavators
15515 SW 150th Ave.
Tigard, OR

K&S Environmental, Inc.

C3, 148 TPH @ 10' ● - Sample Location w/Results & Depth

Job #5978
Date: 3/09/18
Scale: 1" = 14'

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

COC _____ of _____

Lab #

[illegible]

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Thursday, March 1, 2018

Bill Knutson
K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

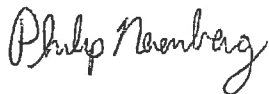
RE: United Excavations/5978

Enclosed are the results of analyses for work order A8B0759, which was received by the laboratory on 2/28/2018 at 4:32:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project/#: United Excavations/5978

Project Manager: Bill Knutson

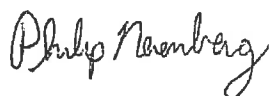
Reported:
03/01/18 16:21

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
5978 P15	A8B0759-01	Soil	02/28/18 00:00	02/28/18 16:32

Apex Laboratories



Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavations/5978

Project Manager: Bill Knutson

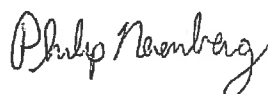
Reported:
03/01/18 16:21

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
5978 P15 (A8B0759-01)			Matrix: Soil		Batch: 8021084			
Diesel	17000	---	247	mg/kg dry	10	03/01/18 09:48	NWTPH-Dx	Q-42
Oil	ND	---	494	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 140 %</i>		<i>Limits: 50-150 %</i>		"	"	S-05

Apex Laboratories



Philip Nerenberg, Lab Director

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503-718-2323 Phone
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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavations/5978**

Project Manager: Bill Knutson

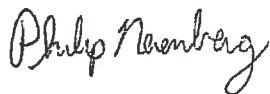
Reported:
03/01/18 16:21

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
5978 P15 (A8B0759-01)			Matrix: Soil		Batch: 8021068			
% Solids	75.4	---	1.00	% by Weight	1	03/01/18 08:19	EPA 8000C	

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Project#: **United Excavations/5978**
Project Manager: Bill Knutson

Reported:
03/01/18 16:21

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch 8021084 - EPA 3546 (Fuels)						Soil							
Blank (8021084-BLK1)						Prepared: 02/28/18 19:27 Analyzed: 03/01/18 05:49							
NWTPH-Dx													
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---		
Oil	ND	---	50.0	"	"	---	---	---	---	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 100 %		Limits: 50-150 %		Dilution: 1x							
LCS (8021084-BS1)						Prepared: 02/28/18 19:27 Analyzed: 03/01/18 06:13							
NWTPH-Dx													
Diesel	115	---	25.0	mg/kg wet	1	125	---	92	76-115%	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 104 %		Limits: 50-150 %		Dilution: 1x							
Duplicate (8021084-DUP1)						Prepared: 02/28/18 19:27 Analyzed: 03/01/18 10:11							
QC Source Sample: 5978 P15 (A8B0759-01)													
NWTPH-Dx													
Diesel	27900	---	246	mg/kg dry	10	---	17000	---	---	48	30%	Q-04	
Oil	ND	---	491	"	"	---	ND	---	---	---	30%		
Surr: o-Terphenyl (Surr)		Recovery: 163 %		Limits: 50-150 %		Dilution: 10x							S-05

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Philip Nerenberg

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Portland, OR 97225

Project#: United Excavations/5978

Project Manager: Bill Knutson

Reported:
03/01/18 16:21

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

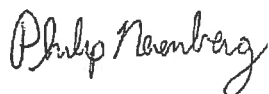
Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	--------------------	-------	------	-----------------	------------------	------	----------------	-----	--------------	-------

Batch 8021068 - Total Solids (Dry Weight)

Soil

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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Portland, OR 97225

Project/ #: **United Excavations/5978**

Project Manager: Bill Knutson

Reported:
03/01/18 16:21

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8021084							
A8B0759-01	Soil	NWTPH-Dx	02/28/18 00:00	02/28/18 19:27	10.75g/5mL	10g/5mL	0.93

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8021068							
A8B0759-01	Soil	EPA 8000C	02/28/18 00:00	02/28/18 19:26	1N/A/1N/A	1N/A/1N/A	NA

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Project/#: United Excavations/5978

Project Manager: Bill Knutson

Reported:
03/01/18 16:21

Notes and Definitions

Qualifiers:

- Q-04 Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
- Q-42 Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
- S-05 Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.

Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch
QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank
Policy Apex assesses blank data for potential high bias down to a level equal to 1/2 the method reporting limit (MRL), except for conventional chemistry and HCLD analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.
- For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.
- Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- *** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

K&S Environmental, Inc
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Portland, OR 97225

Project/#: United Excavations/5978

Project Manager: Bill Knutson

Reported:
03/01/18 16:21

APEX LABS

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A8B07509 of

[illegible]

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Philip Neenberg

Philip Nerenberg, Lab Director

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Portland, OR 97225

Project#: **United Excavations/5978**
Project Manager: Bill Knutson

Reported:
03/01/18 16:21

APEX LABS COOLER RECEIPT FORM

Client: K+S Element WO#: A8 B0759

Project/Project #: United Excavations 5978

Delivery info:

Date/Time Received: 2/28/18 @ By: CFH
Delivered by: Apex ☒ Client ☐ BSS ☐ FedEx ☐ UPS ☐ Swift ☐ Servoy ☐ SDS ☐ Other ☐

Cooler Inspection Inspected by: CFH : 2/28/18 @ 1719

Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☐

Signed/Dated by Client? Yes ☒ No ☐

Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
--	-----------	-----------	-----------	-----------	-----------	-----------	-----------

Temperature (deg. C) _____

Received on Ice? ☒ (Y/N) _____

Temp. Blanks? ☒ (Y/N) 1.2 _____

Ice Type: ☒ Gel/Real/Other _____

Condition: Good _____

Cooler out of temp? ☒ (Y/N) Possible reason why: _____

If some coolers are in temp and some out, was green dot applied to out of temperature samples? Yes/No/NA ☒

Samples Inspection: Inspected by: (S) : 2/28/18 @ 1748

All Samples Intact? Yes ☒ No ☐ Comments: _____

Bottle Labels/COCs agree? Yes ☒ No ☐ Comments: No T on COC or container

Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments: _____

Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments: _____

Water Samples: pH Checked and Appropriate (except VOAs): Yes ☐ No ☐ NA ☒

Comments: _____

Additional Information: _____

Labeled by: OH Witness: VAZ Cooler Inspected by: (S) See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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CHAIN OF CUSTODY

Lab # _____

[illegible]

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Wednesday, March 7, 2018

Bill Knutson
K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

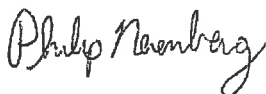
RE: United Excavators/5978

Enclosed are the results of analyses for work order A8C0143, which was received by the laboratory on 3/5/2018 at 3:55:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

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4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5978

Project Manager: Bill Knutson


Reported:
03/07/18 16:31

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
5978 C1	A8C0143-01	Soil	03/05/18 00:00	03/05/18 15:55
5978 C2	A8C0143-02	Soil	03/05/18 00:00	03/05/18 15:55
5978 C3	A8C0143-03	Soil	03/05/18 00:00	03/05/18 15:55
5978 C4	A8C0143-04	Soil	03/05/18 00:00	03/05/18 15:55
5978 C5	A8C0143-05	Soil	03/05/18 00:00	03/05/18 15:55

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Portland, OR 97225

Project#: United Excavators/5978
Project Manager: Bill Knutson

Reported:
03/07/18 16:31

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
5978 C1 (A8C0143-01)			Matrix: Soil	Batch: 8030467				
Diesel	1200	---	26.5	mg/kg dry	1	03/05/18 21:19	NWTPH-Dx	
Oil	ND	---	53.1	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: 76 %	Limits: 50-150 %	"	"	"	
5978 C2 (A8C0143-02)			Matrix: Soil	Batch: 8030467				
Diesel	677	---	28.0	mg/kg dry	1	03/05/18 21:39	NWTPH-Dx	
Oil	ND	---	56.0	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: 86 %	Limits: 50-150 %	"	"	"	
5978 C3 (A8C0143-03)			Matrix: Soil	Batch: 8030467				
Diesel	148	---	27.4	mg/kg dry	1	03/05/18 21:59	NWTPH-Dx	
Oil	ND	---	54.9	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: 81 %	Limits: 50-150 %	"	"	"	
5978 C4 (A8C0143-04)			Matrix: Soil	Batch: 8030467				
Diesel	1070	---	26.7	mg/kg dry	1	03/05/18 22:20	NWTPH-Dx	
Oil	ND	---	53.5	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: 92 %	Limits: 50-150 %	"	"	"	
5978 C5 (A8C0143-05RE1)			Matrix: Soil	Batch: 8030467				
Diesel	6240	---	289	mg/kg dry	10	03/06/18 10:51	NWTPH-Dx	
Oil	ND	---	578	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: 98 %	Limits: 50-150 %	"	"	"	S-05

S-05

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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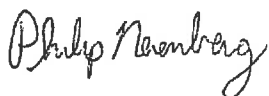
Project#: **United Excavators/5978**
Project Manager: Bill Knutson

Reported:
03/07/18 16:31

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight								
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
5978 C1 (A8C0143-01)			Matrix: Soil		Batch: 8030459			
% Solids	74.0	---	1.00	% by Weight	1	03/06/18 08:36	EPA 8000C	
5978 C2 (A8C0143-02)			Matrix: Soil		Batch: 8030459			
% Solids	69.2	---	1.00	% by Weight	1	03/06/18 08:36	EPA 8000C	
5978 C3 (A8C0143-03)			Matrix: Soil		Batch: 8030459			
% Solids	70.7	---	1.00	% by Weight	1	03/06/18 08:36	EPA 8000C	
5978 C4 (A8C0143-04)			Matrix: Soil		Batch: 8030459			
% Solids	71.3	---	1.00	% by Weight	1	03/06/18 08:36	EPA 8000C	
5978 C5 (A8C0143-05)			Matrix: Soil		Batch: 8030459			
% Solids	66.7	---	1.00	% by Weight	1	03/06/18 08:36	EPA 8000C	

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Project#: United Excavators/5978
Project Manager: Bill Knutson

Reported:
03/07/18 16:31

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8030467 - EPA 3546 (Fuels)						Soil						
Blank (8030467-BLK1)						Prepared: 03/05/18 14:57 Analyzed: 03/05/18 23:05						
NWTPH-Dx												
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	50.0	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 102 %		Limits: 50-150 %		Dilution: 1x						
LCS (8030467-BS1)						Prepared: 03/05/18 14:57 Analyzed: 03/05/18 23:26						
NWTPH-Dx												
Diesel	114	---	25.0	mg/kg wet	1	125	---	91	76-115%	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 96 %		Limits: 50-150 %		Dilution: 1x						

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Project#: United Excavators/5978
Project Manager: Bill Knutson

Reported:
03/07/18 16:31

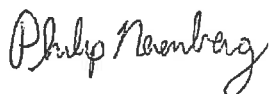
QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8030459 - Total Solids (Dry Weight)							Soil					

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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Portland, OR 97225

Project#: **United Excavators/5978**

Project Manager: Bill Knutson

Reported:
03/07/18 16:31

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8030467							
A8C0143-01	Soil	NWTPH-Dx	03/05/18 00:00	03/05/18 17:49	10.18g/5mL	10g/5mL	0.98
A8C0143-02	Soil	NWTPH-Dx	03/05/18 00:00	03/05/18 17:49	10.31g/5mL	10g/5mL	0.97
A8C0143-03	Soil	NWTPH-Dx	03/05/18 00:00	03/05/18 17:49	10.31g/5mL	10g/5mL	0.97
A8C0143-04	Soil	NWTPH-Dx	03/05/18 00:00	03/05/18 17:49	10.48g/5mL	10g/5mL	0.95
A8C0143-05RE1	Soil	NWTPH-Dx	03/05/18 00:00	03/05/18 17:49	10.37g/5mL	10g/5mL	0.96

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample. Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8030459							
A8C0143-01	Soil	EPA 8000C	03/05/18 00:00	03/05/18 17:44	1N/A/1N/A	1N/A/1N/A	NA
A8C0143-02	Soil	EPA 8000C	03/05/18 00:00	03/05/18 17:44	1N/A/1N/A	1N/A/1N/A	NA
A8C0143-03	Soil	EPA 8000C	03/05/18 00:00	03/05/18 17:44	1N/A/1N/A	1N/A/1N/A	NA
A8C0143-04	Soil	EPA 8000C	03/05/18 00:00	03/05/18 17:44	1N/A/1N/A	1N/A/1N/A	NA
A8C0143-05	Soil	EPA 8000C	03/05/18 00:00	03/05/18 17:44	1N/A/1N/A	1N/A/1N/A	NA

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Project#: United Excavators/5978

Project Manager: Bill Knutson

Reported:
03/07/18 16:31

Notes and Definitions

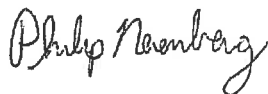
Qualifiers:

S-05 Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.

Notes and Conventions:

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
RPD Relative Percent Difference
MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy Apex assesses blank data for potential high bias down to a level equal to 1/2 the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.
For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.
Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
--- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
*** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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Reported:
03/07/18 16:31

Page 9 of 10

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavators/5978**

Project Manager: Bill Knutson

Reported:
03/07/18 16:31

APEX LABS COOLER RECEIPT FORM

Client: K&S Element WO#: A8 0043
Project/Project #: United Excavators

Delivery info:
Date/Time Received: 3/5/18 1555 By: JD
Delivered by: Apex ☒ Client ☐ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐

Cooler Inspection Inspected by: JD : 3/5/18 @ 1629
Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒
Signed/Dated by Client? Yes ☒ No ☐
Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	<u>7.5</u>						
Received on Ice? (Y/N)	<u>(Y)</u>						
Temp. Blanks? (Y/N)	<u>3.4</u>						
Ice Type: (Gel/Real/Other)	<u>(Gel)</u>						
Condition:	<u>good</u>						
Cooler out of temp? (Y/N) Possible reason why: _____							
If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA <u>(NA)</u>							
Samples Inspection: Inspected by: <u>AKC</u> : <u>3/5/18</u> @ <u>1630</u>							
All Samples Intact? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Comments: _____							
Bottle Labels/COCs agree? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Comments: <u>No T on 0043 cont.</u>							
Containers/Volumes Received Appropriate for Analysis? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Comments: _____							
Do VOA Vials have Visible Headspace? Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>							
Comments: _____							
Water Samples: pH Checked and Appropriate (except VOAs): Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>							
Comments: _____							
Additional Information: _____							

Labeled by:	Witness:	Cooler Inspected by:	See Project Contact Form: Y				
<u>AKC</u>	<u>B</u>	<u>AKC</u>					

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab #

[illegible]

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, March 7, 2018

Bill Knutson
K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

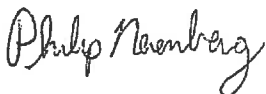
RE: United Excavators/5978

Enclosed are the results of analyses for work order A8C0192, which was received by the laboratory on 3/6/2018 at 3:53:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5978
Project Manager: Bill Knutson

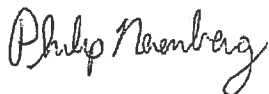
Reported:
03/07/18 16:18

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
5978 C6	A8C0192-01	Soil	03/06/18 00:00	03/06/18 15:53

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

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Tigard, OR 97223
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503-718-0333 Fax

K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavators/5978**

Project Manager: Bill Knutson

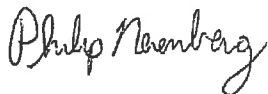
Reported:
03/07/18 16:18

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
5978 C6 (A8C0192-01RE1)			Matrix: Soil		Batch: 8030510			
Diesel	ND	---	27.5	mg/kg dry	1	03/07/18 11:17	NWTPH-Dx	
Oil	ND	---	55.1	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 53 %</i>	<i>Limits: 50-150 %</i>	"	"	"	

Apex Laboratories



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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5978

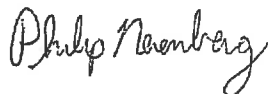
Project Manager: Bill Knutson

Reported:
03/07/18 16:18

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight								
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
5978 C6 (A8C0192-01)			Matrix: Soil		Batch: 8030501			
% Solids	71.2	--	1.00	% by Weight	1	03/07/18 08:15	EPA 8000C	

Apex Laboratories



Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5978
Project Manager: Bill Knutson

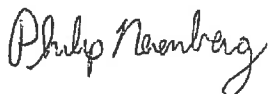
Reported:
03/07/18 16:18

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8030510 - EPA 3546 (Fuels)						Soil						
Blank (8030510-BLK1)						Prepared: 03/06/18 17:31 Analyzed: 03/07/18 05:27						
NWTPH-Dx												
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	50.0	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 97 %		Limits: 50-150 %		Dilution: 1x						
LCS (8030510-BS1)						Prepared: 03/06/18 17:31 Analyzed: 03/07/18 05:48						
NWTPH-Dx												
Diesel	107	---	25.0	mg/kg wet	1	125	---	85	76-115%	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 101 %		Limits: 50-150 %		Dilution: 1x						

Apex Laboratories



Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project/ #: United Excavators/5978

Project Manager: Bill Knutson

Reported:
03/07/18 16:18

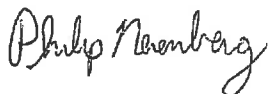
QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8030501 - Total Solids (Dry Weight)						Soil						

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

Apex Laboratories



Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavators/5978**

Project Manager: Bill Knutson

Reported:
03/07/18 16:18

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

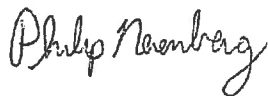
Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8030510							
A8C0192-01RE1	Soil	NWTPH-Dx	03/06/18 00:00	03/06/18 18:40	10.19g/5mL	10g/5mL	0.98

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8030501							
A8C0192-01	Soil	EPA 8000C	03/06/18 00:00	03/06/18 18:24	1N/A/1N/A	1N/A/1N/A	NA

Apex Laboratories



Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5978

Project Manager: Bill Knutson

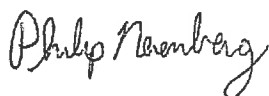
Reported:
03/07/18 16:18

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	<p>Apex assesses blank data for potential high bias down to a level equal to 1/2 the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.</p> <p>For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.</p> <p>Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.</p>
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).



K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project/#: United Excavators/5978

Project Manager: Bill Knutson

Reported:
03/07/18 16:18

CHAIN OF CUSTODY

APEX LABS

Lab # 192 coc of

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

[illegible]

Philip Neenberg

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavators/5978**

Project Manager: Bill Knutson

Reported:
03/07/18 16:18

APEX LABS COOLER RECEIPT FORM

Client: K+S Element WO#: A8 CO 192

Project/Project #: United Excavators/5978

Delivery info:

Date/Time Received: 3-6-18 @ 1553 By: MR
Delivered by: Apex ☒ Client ☐ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐

Cooler Inspection Inspected by: MR : 3-6-18 @ 1800

Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒

Signed/Dated by Client? Yes ☒ No ☐

Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)							
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	<u>5.8</u>						
Ice Type: (Gel/Real/Other)							
Condition:	<u>good</u>						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA ☒

Samples Inspection: Inspected by: MR : 3/6/18 @ 1810

All Samples Intact? Yes ☒ No ☐ Comments:

Bottle Labels/COCs agree? Yes ☒ No ☐ Comments: NO T on coolant.

Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments:

Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments:

Water Samples: pH Checked and Appropriate (except VOAs): Yes ☐ No ☐ NA ☒

Comments:

Additional Information:

Labeled by: AKC Witness: MR Cooler Inspected by: AKC See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1474699

Customer Name KANDSENV K & S ENVIRONMENTAL Carrier Mike Herberger
Ticket Date 03/05/2018 Vehicle# 2H
Payment Type Credit Account Container
Manual Ticket# Driver
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest na
Destination Grid
PO 105603OR
Profile 105603OR (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

	Time	Scale	Operator	Inbound	Gross	
In	03/05/2018 09:51:10	Inbound 2	ksmith49			50340 lb
Out	03/05/2018 09:51:10		ksmith49		Tare	22480 lb
					Net	27860 lb
Comments					Tons	13.93

Consumer Comments? We want to know. Please call.

WASTE MANAGEMENT



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1474923

Customer Name KANDSENV K & S ENVIRONMENTAL Carrier Mike Herberger
Ticket Date 03/06/2018 Vehicle# 3H
Payment Type Credit Account Container
Manual Ticket# Driver DEANNA
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest NA
Destination Grid
PO 105603OR
Profile 105603OR (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

	Time	Scale	Operator	Inbound	Gross	
In	03/06/2018 13:18:58	Inbound 1	jprime			54280 lb
Out	03/06/2018 13:18:58		jprime		Tare	21860 lb
					Net	32420 lb
Comments					Tons	16.21

Consumer Comments? We want to know. Please call.

WASTE MANAGEMENT

18.046

18.046



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1474674

Customer Name KANDBENV K & S ENVIRONMENTAL Carrier Mike Herberger
Ticket Date 03/05/2018 Vehicle# 2H
Payment Type Credit Account Container
Manual Ticket# Driver barney
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest na
Destination Grid
PO 1056030R
Profile 1056030R (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

18.046

Time	Scale	Operator	Inbound	Gross	
In 03/05/2018 08:31:42	Inbound 2	stannery		48520 lb	
Out 03/05/2018 08:31:42		stannery		Tare 22480 lb	
				Net 26040 lb	
				Tons 13.02	

Comments

Consumer Comments? We want to know. Please call.



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1474669

Customer Name KANDBENV K & S ENVIRONMENTAL Carrier Mike Herberger
Ticket Date 03/05/2018 Vehicle# 3H
Payment Type Credit Account Container
Manual Ticket# Driver
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest NA
Destination Grid
PO 1056030R
Profile 1056030R (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

18.046

Time	Scale	Operator	Inbound	Gross	
In 03/05/2018 08:16:33	Inbound 1	KSMITH49		52550 lb	
Out 03/05/2018 08:16:33		KSMITH49		Tare 21860 lb	
				Net 30700 lb	
				Tons 15.35	

Comments 15515 SW 150TH

Consumer Comments? We want to know. Please call.



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1474696

Customer Name KANDSENV K & S ENVIRONMENTAL Carrier Mike Herberger
Ticket Date 03/05/2018 Vehicle# 3H
Payment Type Credit Account Container
Manual Ticket# Driver
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest NA
Destination Grid
PO 105603DR
Profile 105603DR (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

18.046

Time	Scale	Operator	Inbound	Gross
In 03/05/2018 09:29:53	Inbound 1	BLAKE1		55320 lb
Out 03/05/2018 09:29:53		BLAKE1		Tare 21860 lb
				Net 33460 lb
				Tons 16.73

Comments

Consumer Comments? We want to know. Please call.



RECEIVING RECORD

Head Office
4150 N. Suttle Rd.
Portland, OR 97217
1-800-367-8894

R 01-18-0228-006

Received From:

K & S Environmental
4475 SW Scholls Ferry Rd
Portland OR 97225
EPA#
Phone: 503-291-1454
Customer ID# **7062**
Driver: bill

Receiving Location: Plant

FPI
4150 N. Suttle Road
Portland, OR 97217
Phone 503-286-8352
EPA# ORD980975692

Date	Terms	Written By	Sales Rep.	Page
02/28/18	-0-	Salomon		1 of 1

Line	Qty.	Unit	Item	%H2O	Manifest #	B/L#	Net Qty
------	------	------	------	------	------------	------	---------

1	1	Each	Hydro Clor-D-Tect Kit				
			Generator ID# 0		See Comments		

Total Each 1.

2	25	Gal.	Emulsified Fuel	50 %			
			Generator ID# 7062		K & S Environmental		
			profile attached, united excavators. 15515 sw 150 th avenue.				

Total Gal. 25.

Customer warrants that the waste petroleum products being received do not contain any contaminants including, without limitation, pesticides, chlorinated solvents at total concentrations greater than 1000 PPM, PCB's greater than 2 PPM, or any other material classified as hazardous waste by 40 CFR part 261, Subparts C and D (implementing the Federal Resource Conservation and Recovery Act) or by any other state or local hazardous waste classification program. Should Laboratory tests find this product not in compliance with 40 CFR part 261 customer agrees to pay all disposal costs incurred.

Signed X _____ DATE: 02/28/18

Tualatin
Wash. St. Tualatin, OR 97146
Phone: 503-261-1111
Fax: 503-261-1111

Issued: 04/11/04
050, 050, 050, 050
050, 050, 050, 050
050, 050, 050, 050

Vehicle: 050
Ticket: 050
Date: 04/11/04
Ticket: 050

From:
Gross: 050
Price: 050
Net:
Total:

****Edited Ticket****

3/2/2016 3:02:02PM
050, 050, 050, 050
050, 050, 050, 050
050, 050, 050, 050

Total: \$66.00
Payment:

Please Sign Here:
Pot Favor Time Again:



Thank you:

I, the undersigned,
hereby declare that the
property that is subject
to this transaction is
not, to the best of my
knowledge, stolen
property and conforms
with the FWE Hazardous
Substance Removal
policy. I understand
that this statement is
made under penalty of
perjury and may be used
as evidence in court.

A \$12 reprocessing fee
will be assessed for any
lost or stolen checks.

Print
Name:

Created by Wilson, Heather
Created by Wilson, Heather



4475 SW Scholls Ferry Rd., #256 ▲ Portland, OR 97225
(503) 291-1454 ▲ Fax 291-5425

February 26, 2018

United Excavators, Inc.
4804 NW Bethany Blvd., Ste. 1-2, PMB 351
Portland, OR 97229

Attn: Brad Taggard

Re: Heating Oil UST Decommissioning & Generic Remedy Cleanup Report
Property Located at 15685 SW 150th Avenue, Tigard, OR

Dear Mr. Taggard:

Enclosed you will find the 'Contractor Certification of Cleanup' for the heating oil UST cleanup completed at the above referenced property. The work was completed by a certified contractor (K&S) following the rules and regulations set forth by DEQ for the decommissioning and cleanup of residential heating oil USTs. The contractor certification has been registered with DEQ by K&S by submitting a copy of the report and the Contractor's Certification of Cleanup to the DEQ, accompanied by a check for \$200.00. Please do not hesitate to call me if you have any questions.

Sincerely,

Bill Knutson, P.E.
Environmental Engineer
Heating Oil Supervisors License No. 17928



4475 SW Scholls Ferry Rd., #256 ▲ Portland, OR 97225
(503) 291-1454 ▲ Fax 291-5425

Heating Oil Tank Service Provider Certification

Tank Owner Name: William Lyons Homes, Inc.
Date of Report Certification: February 26, 2017
Tank Site Address: 15685 SW 150th Avenue, Tigard, OR 97224
Tank Owner Address: 109 E. 13th Street
DEQ Cleanup File Number: 34-18-0156

Type of Project: Generic Remedy Cleanup

K&S Environmental, Inc. has performed heating oil tank services at the above property and certifies that the work performed meets the appropriate requirements of OAR 340-122-205 through 340-122-360 and OAR Chapter 340, Division 177.

Based on information and belief formed after reasonable inquiry, the heating oil tank services performed under this certification were conducted in compliance with all applicable federal, state, and local laws.

K&S Environmental, Inc. is currently insured as required by OAR 340-163-0050.

Signed By:  Date Signed: 2/26/18
Bill Knutson, President

Licensed Service Provider Company Name: **K&S Environmental, Inc.**

Service Provider License Number: **16479** Expiration Date: **3/15/18**



State of Oregon
Department of
Environmental
Quality

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Underground Storage Tank Program

HEATING OIL TANK SERVICES
SERVICE PROVIDER REPORT CERTIFICATION

GENERIC REMEDY HEATING OIL CLEANUP REPORT FORM

Complete this report and submit it to the DEQ Northwest Regional Office (700 NE Multnomah St., Portland, Oregon, 97232) within sixty (60) days from the date the release from a residential heating oil tank is cleaned up. Completion of this report form satisfies the requirements of OAR 340-177-0055. Please read the Generic Remedy Heating Oil Cleanup Report Form *Instructions* (DEQ-06-LQ-007) before completing this report.

General Information

Property Owner Name: William Lyons Homes, Inc. DEQ Cleanup File No.: 34-18-0156

Property Address: 15685 SW 150th Avenue

City/State/Zip Code: Tigard, OR 97224

County: Washington

Owner Phone Number: 503-312-6213

Owner Mailing Address (if different): 109 E. 13th Street, Vancouver, WA 98660

Name of Person Reporting Release: Bill Knutson

Phone Number (if different from Owner): 503-291-1454

2/14/18

Date the release was originally suspected ☐ (e.g. water in tank) or
☒ confirmed (sight, smell, test). (check ☒ one)

2/15/18

Date the release was reported to DEQ. Name of DEQ person contacted: email
Note: Confirmed releases must be reported within 72-hours by the service provider or the tank owner who performed the work..

2/14/18

Date the tank was ☒ removed or decommissioned ☐ in-place (check ☒ one).

Approximate size of tank: 675 gallons

If the tank was filled in-place, what type of inert fill material was used?
How much? gallons lbs. (check ☒ one)

2/14/18

Date cleanup started.

2/26/18

Date cleanup completed.

N/A

Approximate square footage of home on property where the release has occurred.

Initial Abatement Information (check ☒ or ☒ the appropriate answer)

- ☒ Yes ☐ No A visual inspection of the release has been made and immediate actions taken to prevent any further release or migration of heating oil into surrounding soils or groundwater.
- ☒ Yes ☐ No Any fire, explosion, and/or vapor hazards in soil or groundwater have been identified and mitigated.
☐ Yes ☐ No ☒ NA Monitoring for hazards has continued beyond initial identification. (check ☒ one)

Initial Abatement Information (check ☒ the appropriate answer)

3. ☒ Yes ☐ No ☐ NA As much heating oil and sludge as possible has been removed from the tank.

Gallons removed: 274

Name of oil ☒ recycling or ☐ disposal company (check ☒ one): ORRCo

4. ☒ Yes ☐ No Hazards posed by contaminated soil that has been excavated or exposed have been remedied.
Note: Contaminated soil cannot be stored on-site for more than 30 days without a permit from DEQ.

5. ☐ Yes ☒ No Free product has been observed in the ☐ tank pit and/or ☐ groundwater (Check ☒ any that apply).
Note: Any free product observed must be removed and properly treated/disposed. **Use of the Generic Remedy for Heating Oil Tank Releases is not appropriate if free product is present.**

6. ☐ Yes ☒ No Groundwater has been encountered during tank decommissioning or cleanup actions taken to-date.
Note: DEQ must be notified immediately when groundwater is encountered at any time.
☐ Yes ☐ No Water in the tank excavation was encountered and pumped out, but did not recharge after 24 hours.
Use of the Generic Remedy for Heating Oil Tank Releases is not appropriate if water recharges into the excavation 24-hours after initial pumping.

7. How was the release initially discovered? (Check ☒ any boxes that are correct)
☒ During tank decommissioning
☐ During a site assessment not associated with tank decommissioning (e.g. for property transaction, etc.)
☐ Other. Describe: _____

8. What observations were made about the tank condition when it was removed from the excavation or decommissioned in-place? Describe: tank appeared to have leaked due to corrosion

9. How much contaminated soil was removed? 182.79 ^{tons} cubic yards What was done with the contaminated soil?
(Check ☒ any boxes that apply)
☒ Disposed of at: Hillsboro Landfill (name of disposal company)
☐ Treated off-site at: _____ (name of treatment company)
☐ Treated on-site. ATTACH copy of Solid Waste Letter of Authorization permit approved by DEQ.
☐ Yes ☐ No On-site treatment of contaminated soil is complete. (check ☒ one)

10. How was the cleanup conducted? Describe actions taken during cleanup and note any unusual circumstances:
UST decommissioned by removal & excavation/disposal of PCS

11. Note **highest** TPH soil sample result prior to any excavation of soil: 59,000 mg/kg TPH-Dx

12. The following information must be **ATTACHED** as part of this report (clearly label each attachment as listed below):

Attachment

Label ID

- A Site map, drawn roughly to scale, showing the location of all buildings on the property and on adjacent properties and the location of the heating oil tank. Include distances in feet between objects.
- B Sketch of the property that clearly shows the sample locations and depths of all soil samples collected and identifies each location and sample with a unique sample identification code. An additional cross-section diagram may be necessary to clearly show sample locations at-depth.
- C Copies of chain-of-custody forms for all soil samples collected.
Note: Chain-of-custody forms should include the date, time, and location of each sample collected; the name and company of the person collecting the samples; a description of how the samples were collected, stored, and shipped to the laboratory; and note any problems encountered during the cleanup or sampling process that may have affected sample integrity. Forms should clearly state the address of where samples were collected as a unique identifier.
- D Copies of all laboratory data reports. Test methods used, **including method reporting limits**, must be included. Include data for all samples, even if data is not used in summary (question #13).

- E Copies of all receipts or permits related to the disposal of any ☒ oil / sludge, ☐ free product, ☐ water pumped from the excavation. ☒ contaminated soil, and/or decommissioned ☒ tank and ☒ piping (check ☐ all that apply).
- F Any photographs taken at the time of the heating oil tank decommissioning and cleanup that depict major activities (e.g. tank as it is removed to note presence or absence of pits or holes, contaminated soil handling, excavation, tank/excavation in relation to home, unusual circumstances, etc.)

13. Provide a summary of the concentrations measured in the FINAL round of soil samples from each sample location that clearly show the extent and magnitude of the contamination.
Note: Write in the specific unit of measurement for each contaminant if different. Write in "N/A" if sample not analyzed for TPH-Dx constituents. Use additional pages as necessary to report final summary results.

Sample ID	Location ID	TPH-Dx Conc.	Benzene Conc.	Ethylbenzene Conc.	Naphthalene Conc.
		mg/kg	ppm	ppm	ppm
		mg/kg	ppm	ppm	ppm
		mg/kg	ppm	ppm	ppm
		mg/kg	ppm	ppm	ppm
		mg/kg	ppm	ppm	ppm
		mg/kg	ppm	ppm	ppm

See Attached Report

Final Report Checklist and Signature

All of the following boxes must be checked indicating that the action has been taken and/or procedures followed correctly.
Completing this information does not substitute for service provider checklist certification requirements in OAR Chapter 340, Division 163. The person signing this report must ensure that this information is correct. "Guidance" refers to the Heating Oil Tank Generic Remedy Guidance Document.

- ☒ The cleanup project is for a release from a residential underground heating oil tank (a tank used primarily for single-family dwelling purposes; OR
- ☐ The cleanup project is for a commercial underground heating oil tank. On a separate attachment, describe why use of the generic remedy for residential tanks is appropriate to use for the commercial tank.
- ☐ A verbal report of the discovery of contamination from a leaking heating oil tank was made to the appropriate DEQ regional office.
- ☒ The underground tank was decommissioned following the procedures in Appendix 2 of the Guidance.
- ☒ A site assessment was conducted and the magnitude and extent of the contamination was determined in accordance with the procedures outlined in Appendix 3 of the Guidance.
- ☒ All samples were collected in accordance with methods described in OAR 340-122-0345.
- ☒ This project meets all of the Qualifying Criteria set forth in Section 2 of the Guidance.
- ☒ This project meets Remedial Action Alternative 1 of the Guidance; OR
- ☐ This project meets Remedial Action Alternative 2 of the Guidance.

"By my signature below, I state that the information contained in this report is true and complete to the best of my knowledge."

Name of person preparing report: Bill Knutson ☒ Licensed Cleanup Supervisor?
(please print) (if yes, check ☒ box)

Signature: [Signature] Date: 2/26/18

Supervisor License No.: 17928 Expiration Date: 8/17/18

Licensed Heating Oil Tank
Service Provider Company: RHS Environmental, Inc.

Company License Number: 16479 Expiration Date: 3/15/18

☒ Yes ☐ No Additional information is included. If yes, write in attachment label(s):
(check ☒ one)

NOTE: If cleanup work and report documentation was conducted by the homeowner, on a separate sheet of paper, describe how you learned how to perform the cleanup work.



OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Underground Storage Tank Program

HEATING OIL TANK SERVICES
SERVICE PROVIDER REPORT CERTIFICATION

CLEANUP CHECKLIST

This checklist is divided into five sections. **Section A must be completed for all cleanup projects.** Complete Sections B, C, D, or E as appropriate for the type of cleanup option selected. The checklist must be filled out as completely as possible and any exceptions noted for the certification to be valid.

GENERAL INFORMATION

Tank Owner Name: William Lyons Homes, Inc.

Tank Site Address: 15685 SW 150th Avenue
Tigard, OR 97224

DEQ Cleanup File Number: 34-18-0156

Date Release Reported: 2/14/18

Licensed HOT Service
Provider Company Name: K&S Environmental, Inc.

16479
License Number

3/15/18
Expiration Date

✓ **Check each item as complete and correct.** By checking any of the boxes in this checklist, you are indicating that the statement applies to this project. If there are any exceptions to the statement, please note them in the comment area provided at the end of the checklist. If the statement does not apply, please do not check the box.

NOTE: TPH = Total Petroleum Hydrocarbons as diesel by method NWTPH-Dx

Note: The submittal of this checklist does not replace a final cleanup report

This checklist MUST be signed and dated on page 4

SECTION A - ALL CLEANUP PROJECTS

- ☒ A1. The release of petroleum was reported to DEQ (OAR 340-163-0020(4)).
- ☒ A2. No free product is present or was removed during initial abatement actions.
- ☐ A3. Water is present at the site and DEQ was notified. Please note the name of the DEQ Staff person notified and the date of notification _____
- ☒ A4. A site sketch, drawn approximately to scale, is included in the report (OAR 340-122-0345) which clearly shows:
- ☒ The location of all buildings and other key features, both man-made and natural;
 - ☒ The names of adjacent streets and properties;
 - ☒ The location of all excavations including those that were for the removal of tanks and associated piping as well as those that were strictly for the removal of contaminated soils;
 - ☒ The location of all identified underground storage tanks, including those that were decommissioned as well as those that remain on the site in the vicinity of the cleanup;
 - ☒ All soil and water sample locations including sample depths and analytical results; and
 - ☒ Location of remaining contaminated soil (for risk-based decision making and generic remedy only).
- ☒ A5. All soil and/or water samples have been properly collected, coded, stored, shipped, and analyzed as required, and chain-of-custody forms have been filled out (OAR 340-122-0218, 340-122-0340 and 340-122-0345).

CHECK EITHER A6a or A6b, NOT BOTH

- ☒ A6a. Petroleum-contaminated soil has been removed from the property and properly handled, disposed of, or treated.

Amount of soil taken off-site for treatment/disposal: 182.79 tons

Disposal/treatment location: Hillsboro Landfill

- ☐ A6b. No petroleum-contaminated soil removal occurred.

- ☒ A7. A report has been prepared which includes a detailed description of everything that was observed and performed at the site and contains all of the information required by (check one):

- ☐ OAR 340-122-0360 and OAR 340-177-0055
- ☒ DEQ's "Heating Oil Tank Generic Remedy Guidance Document" (January 24, 2000)
- ☐ DEQ's "Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites" (September, 2003)

For Soil Matrix cleanup project, complete Section B.



For Generic Remedy cleanup project, complete Section C.



For Risk-Based cleanup project (simple, soil-only), complete Section D.



Complete Section E for:

All sites where groundwater is encountered and soil matrix standards for closure are not met.
All sites where heating oil tank constituent concentrations exceed the risk based concentrations in
Appendix A of the DEQ's "Risk-Based Decision Making for the Remediation
of Petroleum-Contaminated Sites" (September, 2003).

SECTION B - SOIL MATRIX CLEANUP

- ☐ B8. No contaminated soil exceeding the soil matrix level established for this site remains onsite. If a pocket of contamination exceeding the matrix level remains, use the appropriate checklist in Section C, D, or E instead.

CHECK EITHER B9a or B9b, NOT BOTH

- ☐ B9a. TPH concentrations were all below 100 mg/kg.
- ☐ B9b. TPH concentrations greater than 100 mg/kg remain in the soil and a Matrix Score Sheet has been completed. Supporting documentation for the matrix evaluation is included in the report. This project is a (check one):
- ☐ Level 2 site (500 ppm TPH)
- ☐ Level 3 site (1,000 ppm TPH)

- ☐ B10. Groundwater was encountered, but no benzene, toluene, ethylbenzene, and total xylenes (BTEX) or polynuclear aromatic hydrocarbons (PAHs) were detected in water above risk-based concentrations. No BTEX was detected in soil samples collected from the soil/water interface pursuant to OAR-340-122-340.

SECTION C - GENERIC REMEDY

- ☒ C8. Contamination is limited to soil only, and the remaining contaminated soil is a minimum of 50 feet above the seasonal high groundwater level.
- ☒ C9. The magnitude and extent of contamination has been clearly delineated both horizontally and vertically to at least 500 mg/kg TPH.
- ☒ C10. The volume of contaminated soil remaining in the subsurface above 500 mg/kg TPH is less than 65 cubic yards. Volume calculations are included in the cleanup report.
- ☒ C11. Any contaminated soil left in place is deeper than 3 feet below ground surface.
- ☒ C12. The maximum heating oil TPH concentration remaining in the soil is less than 10,000 mg/kg. The maximum TPH concentration detected remaining in the soil is 1260 (mg/kg).
- ☐ C13. Contaminated soil left in place is greater than 2,500 mg/kg TPH. A representative soil sample was collected from the most contaminated soil remaining at the site and analyzed for benzene, ethylbenzene and naphthalene. No benzene detected in the soil in excess of 0.1 ppm, no ethylbenzene detected in soil in excess of 0.82 ppm and no naphthalene in soil in excess of 6.5 ppm.

SECTION D - SOIL ONLY RISK-BASED EVALUATIONS

- ☐ D8. Contamination is limited to soil only. The magnitude and extent of heating oil contamination (as TPH), has been clearly delineated vertically and horizontally (OAR 340-122-0240). *Note: It is often a site-by-site decision on the adequacy of this determination. Contact the Department if there are questions on this issue.*
- ☐ D9. A sample representative of the most contaminated soil remaining at the site was obtained and analyzed. No BTEX or PAHs were detected in the soil in excess of any risk-based concentration in DEQ's "Risk-Based Decision Making for the Remediation of Petroleum Contaminated Sites" (September 2003) guidance document.

**SECTION E - GROUNDWATER AND
COMPLEX RISK-BASED EVALUATIONS**

***Note: These certifications are complex and may require Department involvement.
Please contact the Department for assistance as appropriate.***

- ☐ E8. The magnitude and extent of heating oil contamination as TPH in soil, and BTEX & PAHs in groundwater, have been clearly delineated vertically and horizontally (OAR 340-122-0240). *Note: It is often a site-by-site decision on the adequacy of this determination. Contact the Department if there are questions on this issue.*
- ☐ E9. A mass balance calculation for vapor intrusion into the structure of benzene was performed using the air screening model posted on the Department's web page @ www.deq.state.or.us/lq/tanks/hot/screeningmodel.htm.
- ☐ E10. A detailed risk based evaluation has been conducted and the site has been found to be in compliance with OAR 340-122-0205 through 340-122-260. A detailed report documenting the finding has been prepared.

General
Comments: _____

SIGNATURE

Licensed HOT

Supervisor Name: Bill Knutson
(please print)

17928
License Number

8/17/18
Expiration Date

Check the correct box for each section completed in this checklist:

☒ Section A AND ☐ Section B OR ☒ Section C OR ☐ Section D OR ☐ Section E

"By my signature below, I state that the information contained in this checklist is true and complete to the best of my knowledge."

Supervisor Signature: [Signature] Date: 2/26/18

Note: If more than one supervisor was involved with the project, please add a second sheet with the license information and a signature block.



OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Underground Storage Tank Program

HEATING OIL TANK SERVICES
SERVICE PROVIDER REPORT CERTIFICATION

PROJECT COST SUMMARY

This form must be completed by the licensed service provider for each certified heating oil tank project submitted to DEQ.

This summary must be included with the project certification cover sheet, checklist, and decommissioning or cleanup report. Upon receipt, DEQ will separate this form from the report and compile the project cost information for future reference. *This form is used to record general information only and is not part of the individual file for any specific project.*

Complete the following information for Questions 1 through 5:

1. **Date** the heating oil project was complete: 2/26/18
2. **County** the tank site is located in: Washington
3. Project **cost** (what did it cost to perform the services listed below): ≈ 20,000⁰⁰
4. **Type** of certification category (check one):
 - ☐ Decommissioning only
 - ☐ Soil Matrix Cleanup
 - ☒ Generic Remedy Cleanup
 - ☐ Risk-Based Cleanup
5. Rate the general **complexity** of the project as compared to other similar projects of the same category that your company has worked on:
 - ☐ Normal
 - No unusual circumstances
 - ☒ Moderate
 - Some difficulties encountered
 - ☐ Difficult
 - Problems encountered that caused increased work or other complexities



4475 SW Scholls Ferry Rd., #256 ▲ Portland, OR 97225
(503) 291-1454 ▲ Fax 291-5425

February 26, 2018

United Excavators, Inc.
4804 NW Bethany Blvd., Ste. 1-2, PMB 351
Portland, OR 97229

Attn: Brad Taggard

Re: Heating Oil UST Decommissioning & Generic Remedy Cleanup Report
Property Located at 15685 SW 150th Avenue, Tigard, OR

Dear Mr. Taggard:

This report presents the procedures, methods and results of soil sampling, tank decommissioning and soil cleanup activities performed by K&S Environmental, Inc. (K&S) at the above referenced property. The work was completed as part of the decommissioning and soil cleanup of a 675 gallon heating oil (H/O) underground storage tank (UST) formerly used for heating the former residence on site. All the buildings at the site had been demolished as part of a large residential development currently under way along the west side of SW 150th Avenue in Tigard, OR. The tank was located and removed by United Excavators under the supervision of a K&S Licensed Supervisor. Contaminated soil was excavated and the site was closed under DEQ's Generic Remedy Guidelines.

Procedures

K&S visited the site on February 14, 2018 to supervise the decommissioning by removal of a 675 gallon heating oil UST at the site. The tank was exposed and an access hole was cut in the tank top by K&S. All product was removed from the tank and the tank interior was triple rinsed clean by ORRSCO of Portland, OR. All waste was taken to ORRSCO's permitted facility located at 4150 N. Suttle Rd. in Portland, OR where it was recycled. A receipt for the disposal of the tank contents and rinsate is included in this report. Subsequent to emptying and cleaning the tank, the tank was removed from the ground and hauled off site to Far West Metals Recycling in Tualatin, OR where it was disposed of as steel salvage. A receipt for the disposal of the tank is included in this report.

K&S proceeded to excavate obviously contaminated soil detected beneath the tank. The contaminated soil was loaded into dump trucks and then transported under permit to Hillsboro Landfill in Hillsboro, OR. Based upon field observations, a total of 8 soil samples were collected from the remaining in situ soil in the remedial excavation. Two of the soil samples were collected for chemical analysis from the obviously contaminated excavated soil just beneath the tank. All the soil samples were preserved and taken to an independent laboratory for TPH analysis. Based upon the results of the soil samples collected on 2/14/18, K&S returned to the site to excavate additional contaminated soil from the east and west walls on 2/19/18.

Soil sample #8 was collected from the final excavation floor at a depth of 13 feet, and represents the worst case soil remaining at the site with a concentration of 1260 ppm TPH. Sample #9 was collected from a test pit excavated to a depth of 14 feet and represents the vertical extent of the remaining impacted soil.

Samples #4, #6, #10 and #11 were collected from final north, east, south and west walls at a depth of 8-9 feet and contained 336 ppm, 229 ppm, 600 ppm and 359 ppm, respectively. Samples #4, #6, #10 and #11 represent the lateral extent of the remaining contaminated soil in the north, east, south and west directions, respectively. Sample #2 was collected from the obviously contaminated soil excavated from the site, and represents the worst case soil prior to excavation. Based upon the analytical results of soil samples collected from the final remedial excavation, United Excavators backfilled the excavation with clean dirt. The soil samples collected from the final remedial excavation did not contain diesel contamination above 2500 ppm TPH, and no additional analyses were performed on the most highly contaminated sample remaining at the site (#8 at 1260 ppm).

Based upon the results of the soil sampling completed at the site, it is estimated that the remaining soil contamination in excess of 500 ppm TPH extends no greater than 1 additional vertical foot and no more than 1 additional lateral foot in the south direction in the 7-13 foot depth interval.

Volume of Remaining Impacted Soil

Based upon the results of the final soil samples collected at the site, it is estimated that a maximum volume of 22.2 cubic yards of diesel contaminated soil in excess of 500 parts per million remains at the site. The maximum concentration of the remaining impacted soil is 1870 ppm TPH and the contamination encompasses an approximate area of 18 feet by 25 feet, or 450 ft². The calculations for this volume are presented below.

Estimated Depth Interval of Remaining Contamination on the Floor ~ 14 ft. – 13 ft. = 1 foot

Estimated Area of Remaining Contamination = 18 foot x 25 ft. = 450 ft².

Total volume of remaining impacted soil on the exc. floor = 1 ft. x 450 ft² = 450 ft³ = 16.7 cy

Estimated Depth Interval of Remaining Contamination on S. Wall ~ 13 ft. – 7 ft. = 6 foot

Estimated Area of Remaining Contamination = 1 foot by 25 ft. = 25 ft².

Total volume of remaining impacted soil on the S. Wall = 6 ft. x 25 ft² = 150 ft³ = 5.5 cy

Total Volume of Remaining Contamination with concentrations less than 1260 ppm TPH = 16.7+5.5 = 22.2 cy

Chemical Results

All soil samples were analyzed for heating oil using DEQ approved method NWTPH-Dx. The locations of all samples collected by K&S at the site are noted on the attached site map. The location and results of all soil samples are summarized in the following tables. Complete certified analytical reports with chain of custody documentation are included with this report.

Table 1
TPH Results of Confirmation Samples Collected by K&S on 2/14&19/18

Sample ID	Location, Depth	NWTPH-Dx
#1 (removed)	East End UST, 5 ft.	17,700 ppm
#2 (removed)	West End UST, 5 ft.	59,000 ppm
#3 (removed)	Under UST, 10 ft.	2860 ppm
#4	North Wall, 8 ft.	336 ppm
#5 (removed)	East Wall, 8 ft.	2700 ppm
#6	South Wall, 8 ft.	600 ppm
#7 (removed)	West Wall, 8 ft.	1870 ppm
#8	Excavation Floor, 13 ft.	1260 ppm
#9	Excavation Floor, 14 ft.	ND
#10	East Wall, 9 ft.	229 ppm
#11	West Wall, 9 ft.	359 ppm

ppm - parts per million

ND - None detected at or above reportable levels

Sampling Protocol

The soil samples collected from the UST excavation floor and sidewalls were collected directly off the excavator bucket or with a clean shovel. All soil samples obtained during the project were collected using disposable nitrile gloves and placed into clean EPA approved 4 ounce glass containers. The containers were labeled and immediately placed on ice for transport to the laboratory accompanied by chain of custody documentation. The excavation was backfilled with clean overburden soil and sloped for safety purposes.

Waste Disposal

A total of 182.79 tons of diesel contaminated soil was removed from the site and disposed of under permit at Hillsboro Landfill in Hillsboro, OR. Copies of the soil disposal receipts are included with this report.

A total of 274 gallons of emulsified oil and water was generated during the decommissioning of the tank. The waste was taken to ORRCO of Portland, OR where it was recycled. A copy of the disposal receipt is included in this report.

The cleaned tank was transported to Far West Recycling, Inc. in Tualatin, OR where it was disposed of as steel salvage scrap metal. A copy of the tank disposal receipt is included with this report.

Subsurface Conditions

Soil encountered during the course of work at the site consists of brown silty clay from the surface to a depth of approximately 10 feet. Beginning at approximately 10 feet, the soil consists of weathered bedrock the total depth explored of 14 feet. The bedrock layer made excavation of additional soil extremely difficult. The impacted soil directly beneath the tank displayed dark gray discoloration and moderate diesel odor. No groundwater was encountered during the completion of the work at the site. Groundwater is expected to be greater than 100 feet below the surface at the site. The local topography at the site slopes significantly in the south southwest direction.

Conclusions

On February 14, 2018, K&S Environmental, Inc. decommissioned by removal one 675gallon heating oil UST from the property located at 15685 SW 150th Avenue in Tigard, OR. Diesel contaminated soil was encountered beneath the tank and excavation of diesel contaminated soil was performed.

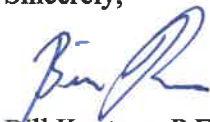
K&S excavated approximately 182.79 tons of diesel contaminated soil from beneath and adjacent to the excavated tank. Excavation of contaminated soil at the site continued until it appeared that no diesel contamination remained in excess of acceptable standards. Chemical analyses of the confirmation soil samples collected by K&S indicate slightly elevated levels of TPH as diesel remained at the site. Since the highest remaining concentration was less than 2500 ppm, additional constituent testing on the most highly contaminated soil remaining at the site was not necessary. It was determined through additional sampling and analyses that the vertical extent of the remaining impacted soil was limited to 14 feet and the lateral migration of contaminants in the south direction was limited to less than approximately one additional lateral foot.

Based upon the results of the soil sampling completed by K&S during cleanup activities, the site qualifies for regulatory closure under DEQ's 'Heating Oil Tank Generic Remedy Guidance Document' rules, and no further work regarding the decommissioned heating oil UST at the site appears warranted.

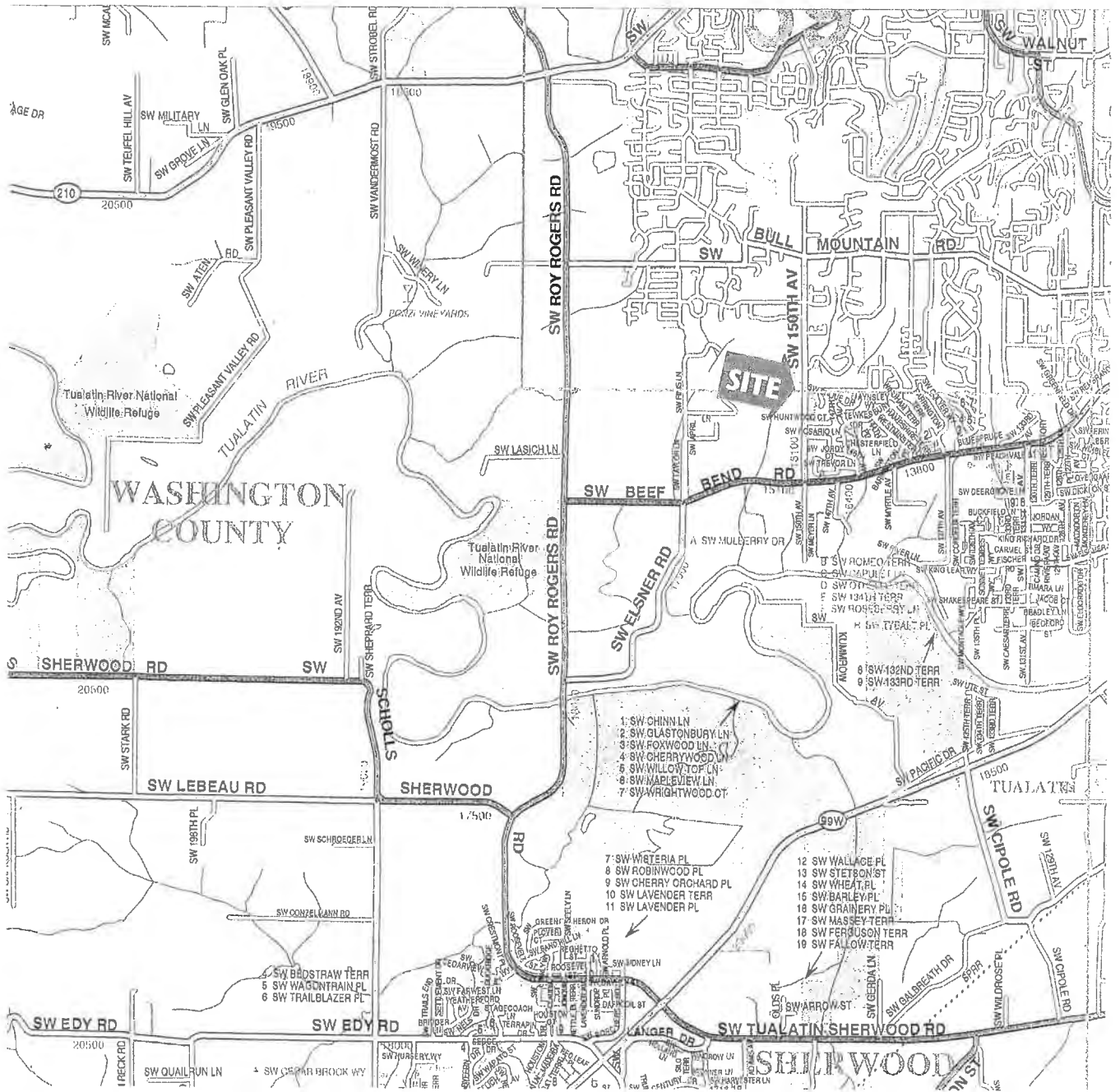
Included with this report are completed copies of the ODEQ "Cleanup Checklist" and 'Generic Remedy Heating Oil Cleanup Report Form', K&S Environmental, Inc.'s Service Provider's Heating Oil UST Cleanup Certification and Project Cost Summary. **This report and contractor certification has been registered with DEQ by K&S by submitting a copy of this report and certification papers along with \$200.00 to the DEQ's Northwest Regional office.**

Please review the findings presented in this report and contact me with any questions or concerns you may have.

Sincerely,



Bill Knutson, P.E.
Environmental Engineer
Heating Oil Supervisor License #17928



Vicinity Map

United Excavators
15685 SW 150th Avenue
Tigard, OR

K&S
Environmental
Inc.

Date: 2/26/18
Project: #5972

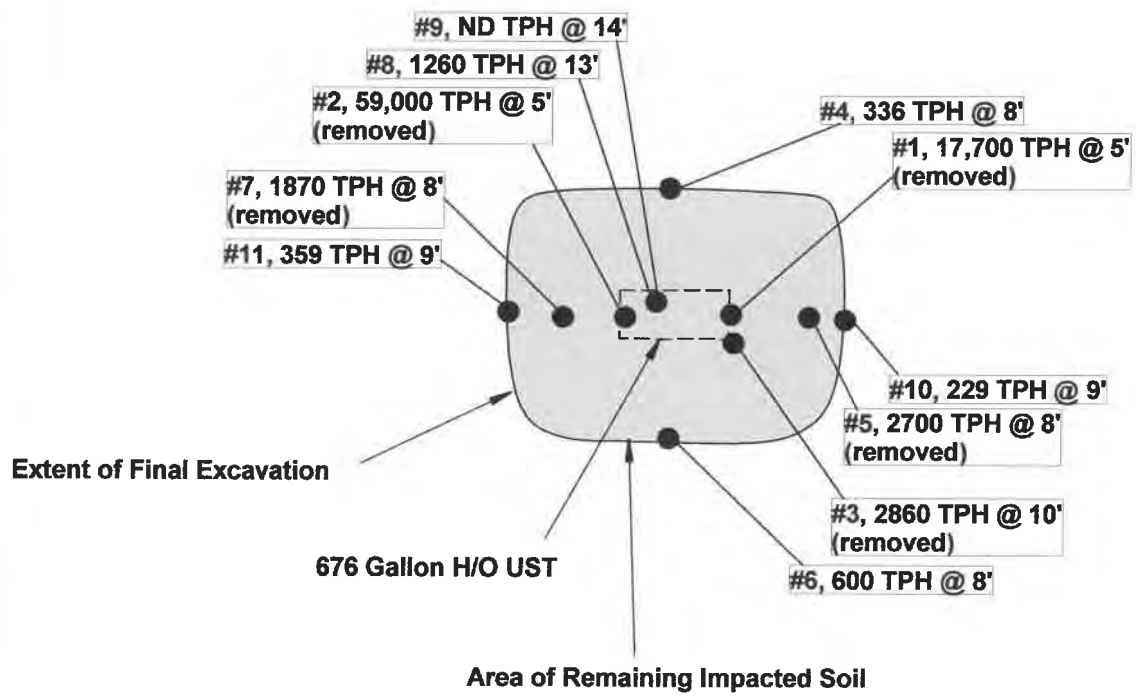


United Excavators
15685 SW 150th Ave.
Tigard, OR

K&S Environmental, Inc.

Date: 2/26/18
Job #5972
Scale: 1" ~ 45'

Google earth



Site Map

United Excavators
15685 SW 150th Ave.
Tigard, OR

K&S Environmental, Inc.

#4, 336 TPH @ 8' ● - Sample Location w/Results & Depth

Job #5972
Date :2/26/18
Scale: 1" = 14'

CHAIN OF CUSTODY

Lab # _____ COC _____ of _____

[illegible]

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Monday, February 26, 2018

Bill Knutson
K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

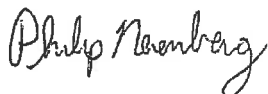
RE: United Excavators/5972

Enclosed are the results of analyses for work order A8B0371, which was received by the laboratory on 2/14/2018 at 4:10:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavators/5972**

Project Manager: Bill Knutson

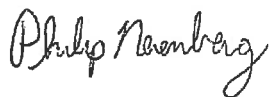
Reported:
02/26/18 12:54

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
5972 #1	A8B0371-01	Soil	02/14/18 00:00	02/14/18 16:10
5972 #2	A8B0371-02	Soil	02/14/18 00:00	02/14/18 16:10
5972 #3	A8B0371-03	Soil	02/14/18 00:00	02/14/18 16:10
5972 #4	A8B0371-04	Soil	02/14/18 00:00	02/14/18 16:10
5972 #5	A8B0371-05	Soil	02/14/18 00:00	02/14/18 16:10
5972 #6	A8B0371-06	Soil	02/14/18 00:00	02/14/18 16:10
5972 #7	A8B0371-07	Soil	02/14/18 00:00	02/14/18 16:10
5972 #8	A8B0371-08	Soil	02/14/18 00:00	02/14/18 16:10

Apex Laboratories



Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5972

Project Manager: Bill Knutson

Reported:
02/26/18 12:54

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
5972 #1 (A8B0371-01)			Matrix: Soil		Batch: 8020685			
Diesel	17700	---	1230	mg/kg dry	50	02/15/18 06:28	NWTPH-Dx	
Oil	ND	---	2470	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: %	Limits: 50-150 %	"	"	"	S-01
5972 #2 (A8B0371-02)			Matrix: Soil		Batch: 8020685			
Diesel	59000	---	2280	mg/kg dry	100	02/15/18 06:49	NWTPH-Dx	
Oil	ND	---	4570	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: %	Limits: 50-150 %	"	"	"	S-01
5972 #3 (A8B0371-03)			Matrix: Soil		Batch: 8020698			
Diesel	2860	---	26.3	mg/kg dry	1	02/14/18 22:45	NWTPH-Dx	
Oil	ND	---	52.6	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: 108 %	Limits: 50-150 %	"	"	"	
5972 #4 (A8B0371-04)			Matrix: Soil		Batch: 8020698			
Diesel	336	---	25.5	mg/kg dry	1	02/14/18 23:28	NWTPH-Dx	
Oil	ND	---	51.1	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: 82 %	Limits: 50-150 %	"	"	"	
5972 #5 (A8B0371-05)			Matrix: Soil		Batch: 8020698			
Diesel	2700	---	25.4	mg/kg dry	1	02/14/18 23:48	NWTPH-Dx	
Oil	ND	---	50.7	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: 107 %	Limits: 50-150 %	"	"	"	
5972 #6 (A8B0371-06)			Matrix: Soil		Batch: 8020698			
Diesel	600	---	25.0	mg/kg dry	1	02/15/18 00:09	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: 77 %	Limits: 50-150 %	"	"	"	
5972 #7 (A8B0371-07)			Matrix: Soil		Batch: 8020698			
Diesel	1870	---	25.0	mg/kg dry	1	02/15/18 00:31	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: 86 %	Limits: 50-150 %	"	"	"	
5972 #8 (A8B0371-08)			Matrix: Soil		Batch: 8020698			
Diesel	1260	---	25.0	mg/kg dry	1	02/15/18 00:52	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			Recovery: 98 %	Limits: 50-150 %	"	"	"	

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavators/5972**
Project Manager: Bill Knutson

Reported:
02/26/18 12:54

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight								
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
5972 #1 (A8B0371-01)			Matrix: Soil				Batch: 8020680	
% Solids	78.6	---	1.00	% by Weight	1	02/15/18 08:00	EPA 8000C	
5972 #2 (A8B0371-02)			Matrix: Soil				Batch: 8020680	
% Solids	80.6	---	1.00	% by Weight	1	02/15/18 08:00	EPA 8000C	
5972 #3 (A8B0371-03)			Matrix: Soil				Batch: 8020680	
% Solids	74.9	---	1.00	% by Weight	1	02/15/18 08:00	EPA 8000C	
5972 #4 (A8B0371-04)			Matrix: Soil				Batch: 8020680	
% Solids	77.4	---	1.00	% by Weight	1	02/15/18 08:00	EPA 8000C	
5972 #5 (A8B0371-05)			Matrix: Soil				Batch: 8020680	
% Solids	75.3	---	1.00	% by Weight	1	02/15/18 08:00	EPA 8000C	
5972 #6 (A8B0371-06)			Matrix: Soil				Batch: 8020680	
% Solids	77.5	---	1.00	% by Weight	1	02/15/18 08:00	EPA 8000C	
5972 #7 (A8B0371-07)			Matrix: Soil				Batch: 8020680	
% Solids	78.9	---	1.00	% by Weight	1	02/15/18 08:00	EPA 8000C	
5972 #8 (A8B0371-08)			Matrix: Soil				Batch: 8020680	
% Solids	81.8	---	1.00	% by Weight	1	02/15/18 08:00	EPA 8000C	

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5972
Project Manager: Bill Knutson

Reported:
02/26/18 12:54

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch 8020685 - EPA 3546 (Fuels)						Soil							
Blank (8020685-BLK1)						Prepared: 02/14/18 14:03 Analyzed: 02/14/18 21:22							
NWTPH-Dx													
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---		
Oil	ND	---	50.0	"	"	---	---	---	---	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 64 %		Limits: 50-150 %		Dilution: 1x							
LCS (8020685-BS1)						Prepared: 02/14/18 14:03 Analyzed: 02/14/18 21:42							
NWTPH-Dx													
Diesel	90.9	---	25.0	mg/kg wet	1	125	---	73	76-115%	---	---	A-01	
Surr: o-Terphenyl (Surr)		Recovery: 84 %		Limits: 50-150 %		Dilution: 1x							
Duplicate (8020685-DUP2)						Prepared: 02/14/18 17:56 Analyzed: 02/15/18 07:10							
QC Source Sample: 5972 #2 (A8B0371-02)													
NWTPH-Dx													
Diesel	43800	---	2290	mg/kg dry	100	---	59000	---	---	29	30%		
Oil	ND	---	4580	"	"	---	ND	---	---	---	30%		
Surr: o-Terphenyl (Surr)		Recovery: %		Limits: 50-150 %		Dilution: 100x							S-01
Batch 8020698 - EPA 3546 (Fuels)						Soil							
Blank (8020698-BLK1)						Prepared: 02/14/18 17:58 Analyzed: 02/14/18 21:22							
NWTPH-Dx													
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---		
Oil	ND	---	50.0	"	"	---	---	---	---	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 98 %		Limits: 50-150 %		Dilution: 1x							
LCS (8020698-BS1)						Prepared: 02/14/18 17:58 Analyzed: 02/14/18 21:42							
NWTPH-Dx													
Diesel	117	---	25.0	mg/kg wet	1	125	---	93	76-115%	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 104 %		Limits: 50-150 %		Dilution: 1x							
Duplicate (8020698-DUP1)						Prepared: 02/14/18 17:58 Analyzed: 02/14/18 23:06							
QC Source Sample: 5972 #3 (A8B0371-03)													
NWTPH-Dx													
Diesel	3270	---	26.3	mg/kg dry	1	---	2860	---	---	13	30%		
Oil	ND	---	52.5	"	"	---	ND	---	---	---	30%		
Surr: o-Terphenyl (Surr)		Recovery: 109 %		Limits: 50-150 %		Dilution: 1x							

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5972

Project Manager: Bill Knutson

Reported:
02/26/18 12:54

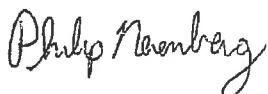
QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8020680 - Total Solids (Dry Weight)							Soil					

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

Apex Laboratories



Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5972

Project Manager: Bill Knutson

Reported:
02/26/18 12:54

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

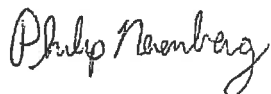
Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8020685							
A8B0371-01	Soil	NWTPH-Dx	02/14/18 00:00	02/14/18 17:56	10.32g/5mL	10g/5mL	0.97
A8B0371-02	Soil	NWTPH-Dx	02/14/18 00:00	02/14/18 17:56	10.87g/5mL	10g/5mL	0.92
Batch: 8020698							
A8B0371-03	Soil	NWTPH-Dx	02/14/18 00:00	02/14/18 17:58	10.16g/5mL	10g/5mL	0.98
A8B0371-04	Soil	NWTPH-Dx	02/14/18 00:00	02/14/18 17:58	10.12g/5mL	10g/5mL	0.99
A8B0371-05	Soil	NWTPH-Dx	02/14/18 00:00	02/14/18 17:58	10.47g/5mL	10g/5mL	0.96
A8B0371-06	Soil	NWTPH-Dx	02/14/18 00:00	02/14/18 17:58	10.59g/5mL	10g/5mL	0.94
A8B0371-07	Soil	NWTPH-Dx	02/14/18 00:00	02/14/18 17:58	10.47g/5mL	10g/5mL	0.96
A8B0371-08	Soil	NWTPH-Dx	02/14/18 00:00	02/14/18 17:58	10.47g/5mL	10g/5mL	0.96

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8020680							
A8B0371-01	Soil	EPA 8000C	02/14/18 00:00	02/14/18 18:58	1N/A/1N/A	1N/A/1N/A	NA
A8B0371-02	Soil	EPA 8000C	02/14/18 00:00	02/14/18 18:58	1N/A/1N/A	1N/A/1N/A	NA
A8B0371-03	Soil	EPA 8000C	02/14/18 00:00	02/14/18 18:58	1N/A/1N/A	1N/A/1N/A	NA
A8B0371-04	Soil	EPA 8000C	02/14/18 00:00	02/14/18 18:58	1N/A/1N/A	1N/A/1N/A	NA
A8B0371-05	Soil	EPA 8000C	02/14/18 00:00	02/14/18 18:58	1N/A/1N/A	1N/A/1N/A	NA
A8B0371-06	Soil	EPA 8000C	02/14/18 00:00	02/14/18 18:58	1N/A/1N/A	1N/A/1N/A	NA
A8B0371-07	Soil	EPA 8000C	02/14/18 00:00	02/14/18 18:58	1N/A/1N/A	1N/A/1N/A	NA
A8B0371-08	Soil	EPA 8000C	02/14/18 00:00	02/14/18 18:58	1N/A/1N/A	1N/A/1N/A	NA

Apex Laboratories



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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavators/5972**

Project Manager: Bill Knutson

Reported:
02/26/18 12:54

Notes and Definitions

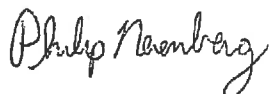
Qualifiers:

- A-01 Blank Spike recovery is below in-house QC lower limit but meets recommended NWTPH Method criteria. Data quality is unaffected.
- S-01 Surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.

Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch
QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank
Policy Apex assesses blank data for potential high bias down to a level equal to $\frac{1}{2}$ the method reporting limit (MRL), except for conventional chemistry and HClD analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.
- For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.
- Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- *** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories



Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project/#: United Excavators/5972

Project Manager: Bill Knutson

Reported:
02/26/18 12:54

CHAIN OF CUSTODY

APEX LABS

2232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A8B037 coc ___ of ___

Company: K&S Environmental		Project Name: United Excavators		Project # 5971														
Address: 4475 SW Scholls Ferry Rd #258		Project Mgr: Bill Krutson		Project Address: 15085 SW 150th Avenue, Tigard, OR														
Email: kean@ksemail.com		Project Mgr: Bill Krutson		Project Address: 15085 SW 150th Avenue, Tigard, OR														
Sampled by: Bill Krutson		Project Mgr: Bill Krutson		Project Address: 15085 SW 150th Avenue, Tigard, OR														
SAMPLE ID	Sample Location/Description	DATE	TIME	MATRIX	Depth (FT)	NWTPH-ACID	NWTPH-DX (Dissolve)	NWTPH-GX	8260B Full List	NWTPH-GX/BTEX	8260B RBD List	8260B BTEX	8270 SIM PAH (16)	8082 PCBs	Methals, RCRA 8	Methals, TCLP 8	5035 Extract and Hold (Field)	6035 Extract and Hold (Lab)
#1	GTS Gallon HOT, East End	3/14/08	8:00	S	5		X											
#2	GTS Gallon HOT, West End	3/14/08	8:00	S	5		X											
#3	Excavation Floor	3/14/08		S	10		X											
#4	N. Wall	3/14/08		S	8		X											
#5	E. Wall	3/14/08		S	8		X											
#6	S. Wall	3/14/08		S	8		X											
#7	W. Wall	3/14/08		S	8		X											
#8	Floor	3/14/08		S	13		X											

Project Name: United Excavators

Project Address: 15085 SW 150th Avenue, Tigard, OR

Project # 5971

Project Mgr: Bill Krutson

Project Address: 15085 SW 150th Avenue, Tigard, OR

Project # 5971

Project Mgr: Bill Krutson

Project Address: 15085 SW 150th Avenue, Tigard, OR

Project # 5971

Project Mgr: Bill Krutson

Project Address: 15085 SW 150th Avenue, Tigard, OR

Project # 5971

Apex Laboratories

Philip Neenberg

Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5972

Project Manager: Bill Knutson

Reported:
02/26/18 12:54

APEX LABS COOLER RECEIPT FORM

Client: K&S Element WO#: A8 80371
Project/Project #: United Excavators 5972
Delivery info:
Date/Time Received: 2/14/18 @ 11:44 By: JS
Delivered by: Apex ☒ Client ☐ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐
Cooler Inspection Inspected by: JS : 2/14/18 @ 11:45
Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒
Signed/Dated by Client? Yes ☒ No ☐
Signed/Dated by Apex? Yes ☒ No ☐

Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C) <u>1.3</u>						
Received on Ice? (Y/N) <u>(Y)</u>						
Temp. Blanks? (Y/N) <u>(N)</u>						
Ice Type: (Gel/Real/Other) <u>(Gel)</u>						
Condition: <u>good</u>						
Cooler out of temp? (Y/N) <u>(N)</u> Possible reason why: _____						
If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA <u>(NA)</u>						
Samples Inspection: Inspected by: <u>JS</u> : <u>2/14/18 @ 11:49</u>						
All Samples Intact? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Comments: _____						
Bottle Labels/COCs agree? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Comments: <u>NO Ton cont.</u>						
Containers/Volumes Received Appropriate for Analysis? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Comments: _____						
Do VOA Vials have Visible Headspace? Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>						
Comments: _____						
Water Samples: pH Checked and Appropriate (except VOAs): Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>						
Comments: _____						
Additional Information: _____						

Labeled by: AKC Witness: JS Cooler Inspected by: JS See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # _____ COC _____ of _____

[illegible]

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Tuesday, February 20, 2018

Bill Knutson
K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

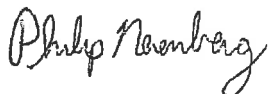
RE: United Excavators/5972

Enclosed are the results of analyses for work order A8B0500, which was received by the laboratory on 2/19/2018 at 3:46:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5972

Project Manager: Bill Knutson

Reported:
02/20/18 11:50

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
5972 #9	A8B0500-01	Soil	02/19/18 00:00	02/19/18 15:46
5972 #10	A8B0500-02	Soil	02/19/18 00:00	02/19/18 15:46
5972 #11	A8B0500-03	Soil	02/19/18 00:00	02/19/18 15:46

Apex Laboratories



Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavators/5972**
Project Manager: Bill Knutson

Reported:
02/20/18 11:50

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
5972 #9 (A8B0500-01)			Matrix: Soil		Batch: 8020813			
Diesel	ND	---	25.0	mg/kg dry	1	02/19/18 20:54	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 73 %</i>	<i>Limits: 50-150 %</i>	"	"	"	
5972 #10 (A8B0500-02)			Matrix: Soil		Batch: 8020813			
Diesel	229	---	25.0	mg/kg dry	1	02/19/18 21:15	NWTPH-Dx	
Oil	ND	---	50.1	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 69 %</i>	<i>Limits: 50-150 %</i>	"	"	"	
5972 #11 (A8B0500-03)			Matrix: Soil		Batch: 8020813			
Diesel	359	---	25.8	mg/kg dry	1	02/19/18 21:36	NWTPH-Dx	
Oil	ND	---	51.5	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 69 %</i>	<i>Limits: 50-150 %</i>	"	"	"	

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project/ #: United Excavators/5972

Project Manager: Bill Knutson

Reported:
02/20/18 11:50

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight								
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
5972 #9 (A8B0500-01)			Matrix: Soil		Batch: 8020806			
% Solids	80.8	---	1.00	% by Weight	1	02/20/18 08:15	EPA 8000C	
5972 #10 (A8B0500-02)			Matrix: Soil		Batch: 8020806			
% Solids	74.6	---	1.00	% by Weight	1	02/20/18 08:15	EPA 8000C	
5972 #11 (A8B0500-03)			Matrix: Soil		Batch: 8020806			
% Solids	73.9	---	1.00	% by Weight	1	02/20/18 08:15	EPA 8000C	

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavators/5972**

Project Manager: Bill Knutson

Reported:
02/20/18 11:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8020813 - EPA 3546 (Fuels)						Soil						
Blank (8020813-BLK1)						Prepared: 02/19/18 13:34 Analyzed: 02/19/18 20:12						
NWTPH-Dx												
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	50.0	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 93 %		Limits: 50-150 %		Dilution: 1x						
LCS (8020813-BS1)						Prepared: 02/19/18 13:34 Analyzed: 02/19/18 20:33						
NWTPH-Dx												
Diesel	114	---	25.0	mg/kg wet	1	125	---	91	76-115%	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 98 %		Limits: 50-150 %		Dilution: 1x						

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavators/5972**

Project Manager: Bill Knutson

Reported:
02/20/18 11:50

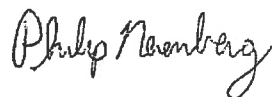
QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8020806 - Total Solids (Dry Weight)						Soil						

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

Apex Laboratories



Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5972

Project Manager: Bill Knutson

Reported:
02/20/18 11:50

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

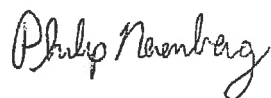
Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8020813							
A8B0500-01	Soil	NWTPH-Dx	02/19/18 00:00	02/19/18 17:35	10.55g/5mL	10g/5mL	0.95
A8B0500-02	Soil	NWTPH-Dx	02/19/18 00:00	02/19/18 17:35	10.7g/5mL	10g/5mL	0.94
A8B0500-03	Soil	NWTPH-Dx	02/19/18 00:00	02/19/18 17:35	10.51g/5mL	10g/5mL	0.95

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8020806							
A8B0500-01	Soil	EPA 8000C	02/19/18 00:00	02/19/18 18:32	1N/A/1N/A	1N/A/1N/A	NA
A8B0500-02	Soil	EPA 8000C	02/19/18 00:00	02/19/18 18:32	1N/A/1N/A	1N/A/1N/A	NA
A8B0500-03	Soil	EPA 8000C	02/19/18 00:00	02/19/18 18:32	1N/A/1N/A	1N/A/1N/A	NA

Apex Laboratories



Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavators/5972**

Project Manager: Bill Knutson

Reported:
02/20/18 11:50

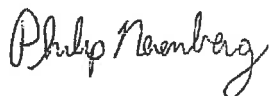
Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	<p>Apex assesses blank data for potential high bias down to a level equal to 1/2 the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.</p> <p>For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.</p> <p>Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.</p>
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories



Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: **United Excavators/5972**

Project Manager: Bill Knutson

Reported:
02/20/18 11:50

CHAIN OF CUSTODY

Lab # A80500 of COC

APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: K&S Environmental Address: 4475 SW Scholls Ferry Rd #256 Sampled by: Bill K		Project Mgr: Bill Knutson Email: bknutson@kandse.com		Project Name: United Excavators Project Address: 15605 SW 150th Avenue, Tigard, OR		Project #: 5972	
SAMPLE ID	Sample Location/Description	DATE	TIME	MATRIX	Depth (FT)	ANALYSIS REQUEST	
#9	Excavation Floor	2/19/18		S	14	NWTPH-GX	
#10	East Wall	2/19/18		S	9	NWTPH-GX (Dioxin/Oil)	
#11	West Wall	2/19/18		S	9	NWTPH-GX	
						2260B Full List	
						NWTPH-GX/BTEX	
						2260B RBDM List	
						2260B BTEX	
						2270 SIM PAH (16)	
						2082 PCBs	
						Metals, RCRA 8	
						Metals, TCLP 8	
						6035 Extract and Hold (Field)	
						6035 Extract and Hold (Lab)	

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

RELINQUISHED BY: Signature: <i>[Signature]</i> Printed Name: <i>[Name]</i> Company: <i>[Company]</i>	RECEIVED BY: Signature: <i>[Signature]</i> Printed Name: <i>[Name]</i> Company: <i>[Company]</i>
---------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------

SAMPLES ARE HELD FOR 30 DAYS

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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K&S Environmental, Inc
4475 S.W. Scholls Ferry Rd #256
Portland, OR 97225

Project#: United Excavators/5972

Project Manager: Bill Knutson

Reported:
02/20/18 11:50

APEX LABS COOLER RECEIPT FORM

Client: K&S Element WO#: AO B0500

Project/Project #: United Excavators 5972

Delivery info:

Date/Time Received: 2/19/18 @ 154 By: JS

Delivered by: Apex ☒ Client ☐ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐

Cooler Inspection Inspected by: JS : 2/19/18 @ 1610

Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒

Signed/Dated by Client? Yes ☒ No ☐

Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	<u>2.7</u>						
Received on Ice? (Y/N)	<u>Y</u>						
Temp. Blanks? (Y/N)	<u>N</u>						
Ice Type: (Gel/Real/Other)	<u>Good</u>						
Condition:	<u>good</u>						

All Samples Intact? Yes ☐ No ☐ Comments:

Bottle Labels/COCs agree? Yes ☒ No ☐ Comments: No Ton COC or containers

Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments:

Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments:

Water Samples: pH Checked and Appropriate (except VOAs): Yes ☐ No ☐ NA ☒

Comments:

Additional Information:

Labeled by: [Signature] Witness: [Signature] Cooler Inspected by: [Signature] See Project Contact Form: Y



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1473000

Customer Name KANDSENV K & S ENVIRONMENTAL Carrier all oregon
Ticket Date 02/19/2018 Vehicle# 12-SOLO
Payment Type Credit Account Container
Manual Ticket# Driver TRAVIS
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest NA
Destination Grid
PO 105603OR
Profile 105603OR (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

	Time	Scale	Operator	Inbound	Gross	
In	02/19/2018 10:30:56	Inbound 1	JPRIME		Tare	72120 lb
Out	02/19/2018 10:30:56		JPRIME		Net	27940 lb
					Tons	44180 lb

Comments

Consumer Comments? We want to know. Please call.

18.039



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1472963

Customer Name KANDSENV K & S ENVIRONMENTAL Carrier all oregon
Ticket Date 02/19/2018 Vehicle# 12-SOLO
Payment Type Credit Account Container
Manual Ticket# Driver TRAVIS
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest NA
Destination Grid
PO 105603OR
Profile 105603OR (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

	Time	Scale	Operator	Inbound	Gross	
In	02/19/2018 08:53:48	Inbound 1	JPRIME		Tare	66800 lb
Out	02/19/2018 08:53:48		JPRIME		Net	27940 lb
					Tons	38860 lb

Comments

Consumer Comments? We want to know. Please call.

18.039



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1472961

Customer Name KANSENV K & S ENVIRONMENTAL Carrier all oregon
Ticket Date 02/19/2018 Vehicle# 11
Payment Type Credit Account Container
Manual Ticket# Driver GARY
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest na
Destination Grid
PO 1056030R
Profile 1056030R (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

Time	Scale	Operator	Inbound	Gross	
In 02/19/2018 08:49:31	Inbound 2	ksteffle			60500 lb
Out 02/19/2018 08:49:31		ksteffle		Tare	26720 lb
				Net	33780 lb
				Tons	16.89

Comments

Consumer Comments? We want to know. Please call.



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1473032

Customer Name KANSENV K & S ENVIRONMENTAL Carrier all oregon
Ticket Date 02/19/2018 Vehicle# 11
Payment Type Credit Account Container
Manual Ticket# Driver GARY
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest na
Destination Grid
PO 1056030R
Profile 1056030R (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

Time	Scale	Operator	Inbound	Gross	
In 02/19/2018 11:52:45	Inbound 1	JPRIME			64160 lb
Out 02/19/2018 11:52:45		JPRIME		Tare	26720 lb
				Net	37440 lb
				Tons	18.72

Comments

Consumer Comments? We want to know. Please call.



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1472504

Customer Name KANDSENV K & S ENVIRONMENTAL Carrier all oregon
Ticket Date 02/14/2018 Vehicle# 11
Payment Type Credit Account Container
Manual Ticket# Driver GARY
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest NA
Destination Grid
PO 1056030R
Profile 1056030R (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

✓
18.039

	Time	Scale	Operator	Inbound	Gross	
In	02/14/2018 12:25:17	Inbound 2	ksteffle		61500	lb
Out	02/14/2018 12:25:17		ksteffle		26720	lb
					34780	lb
Comments					17.39	Tons

Consumer Comments? We want to know. Please call.



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1472992

Customer Name KANDSENV K & S ENVIRONMENTAL Carrier all oregon
Ticket Date 02/19/2018 Vehicle# 11
Payment Type Credit Account Container
Manual Ticket# Driver GARY
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest NA
Destination Grid
PO 1056030R
Profile 1056030R (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

18.039

	Time	Scale	Operator	Inbound	Gross	
In	02/19/2018 10:16:42	Inbound 1	JPRIME		67020	lb
Out	02/19/2018 10:16:42		JPRIME		26720	lb
					40300	lb
Comments					20.13	Tons

Consumer Comments? We want to know. Please call.



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1472562

Customer Name KANDSENV K & S ENVIRONMENTAL
Ticket Date 02/14/2018
Payment Type Credit Account
Manual Ticket#
Hauling Ticket#
Route
State Waste Code
Manifest NA
Destination
PO 1056030R
Profile 1056030R (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Carrier all oregon
Vehicle# 11
Container
Driver GARY
Check#
Billing # 0000527
Gen EPA ID N/A

Volume

Grid

18.039

Time	Scale	Operator	Inbound	Gross
In 02/14/2018 10:51:55	Inbound 1	JPRIME		63160 lb
Out 02/14/2018 10:51:55		JPRIME		26720 lb
Comments				Net 36440 lb
				Tons 18.22

Consumer Comments? We want to know. Please call.



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1472571

Customer Name KANDSENV K & S ENVIRONMENTAL
Ticket Date 02/14/2018
Payment Type Credit Account
Manual Ticket#
Hauling Ticket#
Route
State Waste Code
Manifest NA
Destination
PO 1056030R
Profile 1056030R (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Carrier United Excavators
Vehicle# DT03
Container
Driver KARY
Check#
Billing # 0000527
Gen EPA ID N/A

Volume

Grid

our time

18.059

Time	Scale	Operator	Inbound	Gross
In 02/14/2018 11:38:45	Inbound 1	BLAKE1		54460 lb
Out 02/14/2018 11:38:45		BLAKE1		25280 lb
Comments				Net 29180 lb
				Tons 14.59

Consumer Comments? We want to know. Please call.

Amount Origin



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1472567

Customer Name KANSENV K & S ENVIRONMENTAL Carrier all oregon
Ticket Date 02/14/2018 Vehicle# 12-SOLD
Payment Type Credit Account Container
Manual Ticket# Driver GARY
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest NA
Destination Grid
PO 1056030R
Profile 1056030R (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

Time	Scale	Operator	Inbound	Gross	
In 02/14/2018 11:21:48	Inbound 1	BLAKE1		67220	lb
Out 02/14/2018 11:21:48		BLAKE1		27940	lb
				39280	lb
				Tons	19.64

Comments

Consumer Comments? We want to know. Please call.



Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1473037

Customer Name KANSENV K & S ENVIRONMENTAL Carrier all oregon
Ticket Date 02/19/2018 Vehicle# 12-SOLD
Payment Type Credit Account Container
Manual Ticket# Driver TRAVIS
Hauling Ticket# Check#
Route Billing # 0000527
State Waste Code Gen EPA ID N/A
Manifest na
Destination Grid
PO 1056030R
Profile 1056030R (Diesel Fuel Contaminated Soil and Debris)
Generator OR-VARIOUS GENERATORS VARIOUS GENERATORS

Volume

Time	Scale	Operator	Inbound	Gross	
In 02/19/2018 12:10:00	Inbound 1	JPRIME		59280	lb
Out 02/19/2018 12:10:00		JPRIME		27940	lb
				31340	lb
				Tons	15.67

Comments

Consumer Comments? We want to know. Please call.

4150 N. Suttle Road
Portland, Oregon 97217
Phone 503-286-8352
Toll Free 800-367-8894
EPA# ORD980975692



Orrco
The oil recycler.

Gresham, OR:
Hoquiam, WA:
Klamath Falls, OR:
Kennewick, WA:
Medford, OR:
Coos Bay, OR:
Spokane, WA:

EPA# ORQ000024941
EPA# WAD988519419
EPA# ORD980980775
EPA# WAH000011577
EPA# ORD987197092
EPA# ORD980978266
EPA# WAH000011585

FILE # LADING 313615

Date 2-14-18

Customer # 7062

Dispatch #

Generator POLYGON HOMES
Name BILL
Address 15685 SW 150TH AVE TIGARD, OR 97224
City TIGARD State OR Zip 97224 County

Billing Information
K&S ENVIRONMENTAL
Check# PO#

Transportation
Consigned To: OIL REFINING
Destination: 4150 N SUTTLE RD PORTLAND, OR 97217
Via Carrier: ORRCO
Driver: DANNY W Truck # 4102

Load Ticket #

Gal./Brl.	Description	Profile Date	EDT/HCDT	pH	Flash Point	Rate per Gal./Brl.	Rate Per Hour	Charge
274	EMULSIFIED FUEL & WATER	2/14/18			>200°F			
1	HYDROCLOR TEST							
2 Hr	TRUCK & DRIVER							

Above material is being transported for Recycling

EPA# NONE

Total:

As an authorized representative of the generator of the material described above, I certify that the information contained in this document is 100% accurate and complete. I further certify that this material does NOT constitute a hazardous waste and has NOT been mixed with any hazardous waste such as spent chlorinated solvents or any other contaminants including, without limitation, PCBs, pesticides, or any other hazardous wastes or substances. In the event that the material described in this document is in fact a hazardous waste, or contains 2 ppm or more of PCBs, I guarantee to pay all costs necessary for proper analysis, transportation, storage, and disposal as well as any fines, penalties, attorneys fees, expert witness fees and the loss of the petroleum product resulting from contamination and / or inaccurate and / or incomplete information concerning the material described above.

Signed X

Bill

Date: 2-14-18

Far West Recycling, Inc.
- Tualatin
9665 SW Tualatin-Sherwood
Road

REPRINTED TICKET

Tualatin, OR 97062
503-643-9944/503-200-5425
Fax

Robert Valdez Jr
3819 Birch Creek Rd
Valier, MT 59486

Driver's Lic: 100521969411

Vehicle Tag:

Ticket No. 242107
Date: 2/14/18 1:19 pm
Tracking ID OIL TANK

Item

Gross Price	Tare	Net Total
Ferrous Metal		
25,960	25,260	700
130.000ST		45.50

Total
Payment **\$45.50**

Please Sign Here:
Por Favor Fírmelo Aquí:

Bob Valdez

Thank you!

I, the undersigned,
hereby declare that the
property that is subject
to this transaction is
not, to the best of my
knowledge, stolen
property and conforms
with the FWF Hazardous
Substance Removal
policy. I understand
that this statement is
made under penalty of
perjury and may be used
as evidence in court.

A \$12 reprocessing fee
will be assessed for any
lost or stolen checks.

Print
Name: _____

Created By Wilson, Heather
Paid By Wilson, Heather

APPENDIX D



Oregon

Kate Brown, Governor

Department of Environmental Quality

Northwest Region

700 NE Multnomah Street, Suite 600

Portland, OR 97232

(503) 229-5263

FAX (503) 229-6945

TTY 711

March 6, 2018

WILLIAM LYONS HOMES, INC.
109 E 13TH ST
VANCOUVER, WA 98660

Re: Williams Lyons Homes, Inc.
File No: 34-18-0156



Dear Williams Lyons Homes, Inc.:

The Department of Environmental Quality has received a report and K&S Environmental, Inc. certification concerning the heating oil underground storage tank (HOT) assessment and/or cleanup conducted at 15685 SW 150th Ave, in Tigard, Oregon.

K&S Environmental, Inc. was licensed to provide heating oil tank services and has certified that the cleanup has met the Department's requirements. The Department has registered this report and certification and closed its file on the project.

The decision to register the report and certification and to close the Department's file will no longer apply if new or undisclosed facts show that the project does not comply with the rules governing heating oil tank cleanups.

Please note that you are required by state law (ORS 105.464) to provide potential buyers a disclosure statement that includes information regarding underground storage tanks, HOTs and the environmental conditions on your property.

Accordingly, we recommend that you keep a copy of this letter, the certification and any reports of testing or corrective actions relating to your HOT with the permanent property records.

Your efforts to comply with Oregon's environmental rules and regulations to ensure that your heating oil tank has been adequately addressed have been appreciated. Proper decommissioning and cleanup helps ensure protection of the environment from future heating oil tank leaks and ensures that the heating oil does not adversely impact human health or the environment.

If you have any questions, please feel free to contact the HOT Program at (503) 229-6170.

Sincerely,

Michael H Korten Hof, Manager
DEQ Heating Oil Tank Program

cc. Contractor by email



Oregon

Kate Brown, Governor

Department of Environmental Quality

Northwest Region

700 NE Multnomah Street, Suite 600

Portland, OR 97232

(503) 229-5263

FAX (503) 229-6945

TTY 711

March 22, 2018

CHRIS WALTHER
WILLIAM LYONS HOMES, INC.
109 E 13TH ST
VANCOUVER, WA 98660-3229



Re: William Lyons Homes, Inc.
File No: 34-18-0209

Dear Chris Walther:

The Department of Environmental Quality has received a report and K&S Environmental, Inc. certification concerning the heating oil underground storage tank (HOT) assessment and/or cleanup conducted at 15515 SW 150th Ave, in Tigard, Oregon.

K&S Environmental, Inc. was licensed to provide heating oil tank services and has certified that the cleanup has met the Department's requirements. The Department has registered this report and certification and closed its file on the project.

The decision to register the report and certification and to close the Department's file will no longer apply if new or undisclosed facts show that the project does not comply with the rules governing heating oil tank cleanups.

Please note that you are required by state law (ORS 105.464) to provide potential buyers a disclosure statement that includes information regarding underground storage tanks, HOTs and the environmental conditions on your property.

Accordingly, we recommend that you keep a copy of this letter, the certification and any reports of testing or corrective actions relating to your HOT with the permanent property records.

Your efforts to comply with Oregon's environmental rules and regulations to ensure that your heating oil tank has been adequately addressed have been appreciated. Proper decommissioning and cleanup helps ensure protection of the environment from future heating oil tank leaks and ensures that the heating oil does not adversely impact human health or the environment.

If you have any questions, please feel free to contact the HOT Program at (503) 229-6170.

Sincerely,

Michael H Korten Hof, Manager
DEQ Heating Oil Tank Program

cc. Contractor by email

LustHotSP.doc

APPENDIX E



(503)
522-2727

CCB# 202772
DEQ# 38783
PLUMBING# PB1466

P.O. BOX 1050
GASTON, OR 97119
503-522-2727 OFFICE
503-687-2381 FAX

Billing
INVOICE# 09368
DATE 2/27/19
TECHNICIAN Austin #16
ORIGINATION Existing
CUSTOMER United Exchanges
ADDRESS 15515 SW 150th
CITY Tigard STATE OR ZIP 97224
BEST PHONE # (971) 322-7872 (even)
CONTACT #
FAX #

TIME IN 8:00 AM/PM
TIME OUT 8:50 AM/PM

☐ YES DAYS

GUARANTEE

☒ NO

WORK PERFORMED

DRAIN CLEANING	
ADD. DRAINS	<input type="checkbox"/>
SEPTIC PUMP	588-
GREASE PUMP	
VIDEO INSPECTION	
PIPE LOCATE	
WATER JETTING	
EXCAVATION	
PRODUCTS	
PARTS	
LABOR	
DIAGNOSIS FEE	
SERVICE CALL	
ROOF/2ND FLOOR	
SECOND MAN	
PLUMBING	
3% CC FEE	
TOTAL	588-
PAYMENT RECEIVED	0
BALANCE DUE	588-

DRAIN	NEED SURV.	FLAT/ HOURLY	\$	AUTH.
MAIN LINE		HOURLY		
KITCHEN SINK		FLAT		
LAUNDRY LINE		FLAT		
BATH SINK		FLAT		
BATH TUB		FLAT		
VIDEO		HOURLY		
TOILET		FLAT		
FLOOR DRAIN		FLAT		
AREA DRAIN		HOURLY		
RAIN DRAIN		HOURLY		
SEPTIC/GREASE		GAL.	1000 gal 0.49	
VIDEO		HOURLY		
18.038				
APPROVAL CODE #				
CHECK #				
RECOMMENDATIONS				
3% CC FEE				
TOTAL				
PAYMENT RECEIVED				
BALANCE DUE				

ADDITIONAL TERMS AND CONDITIONS CONTAINED ON
THE REVERSE SIDE OF THIS SHEET

WEBSITE: WESTSIDEDRAIN.COM
EMAIL: WESTSIDEDRAIN@ICLOUD.COM

ACCEPTANCE OF ESTIMATE AND TERMS AND CONDITIONS

ACKNOWLEDGEMENT OF COMPLETION

(503)

522-2727

CCB# 202772
DEQ# 38783
PLUMBING# PB1466

P.O. BOX 1050
GASTON, OR 97119
503-522-2727 OFFICE
503-687-2381 FAX

4804 NW Bettyway Blvd.
St. 1-2 Portland 97229

INVOICE# 09 64

DATE 2/19/18

ORIGINATION Existing

TECHNICIAN Justin #16

CUSTOMER United Excavators

ADDRESS 15745 SW 150th

CITY Tigard

STATE OR

ZIP 97223

BEST PHONE # 503 914-7166 (rad)

CONTACT #

FAX #

TIME IN 8:00
TIME OUT 9:15

☐ YES DAYS

GUARANTEE

☒ NO

WORK PERFORMED

Ripped out septic tank 1,000
Gallons for Decommissioning

DRAIN CLEANING

ADD DRAINING ☐

SEPTIC PUMP

550-

GREASE PUMP

VIDEO INSPECTION

PIPE LOCATE

WATER JETTING

EXCAVATION

PRODUCTS

PARTS

LABOR

DIAGNOSIS FEE

SERVICE CALL

ROOF/2ND FLOOR

SECOND MAN

PLUMBING

APPROVAL CODE #

CHECK #

PARTS

RECOMMENDATIONS

QTY. PART# DESCRIPTION PRICE

☒ ENZYME TREATMENT

☒ VIDEO INSPECTION

☐ ROOT KILLER

☐ PIPE REPAIR/REPLACEMENT

☒ ANNUAL MAINTENANCE

☐ CLEANOUT/INSTALLATION

☒ WATER JETTING

☐

5% CC FEE

TOTAL

550-

PAYMENT RECEIVED

0

TAX AMOUNT


550

ADDITIONAL TERMS AND CONDITIONS CONTAINED ON
THE REVERSE SIDE OF THIS SHEET

WEBSITE: WESTSIDEDRAIN.COM
EMAIL: WESTSIDEDRAIN@CLOUD.COM

X ACCEPTANCE OF ESTIMATE TERMS AND CONDITIONS

X ACKNOWLEDGEMENT OF COMPLETION



WEST SIDE DRAIN
(503) 522-2727
 CCB# 202772
 DEQ# 38783
 PLUMBING# PB1466

P.O. BOX 1050
 GASTON, OR 97119
 503-522-2727 OFFICE
 503-687-2381 FAX

~~West Side Drain~~
 Email _____
INVOICE# 03438
 DATE 3/28/18
 ORIGATION Existing TECHNICIAN Justin # 16
 CUSTOMER United excavators
 ADDRESS 15915 SW 150th Ave
 CITY Portland STATE OR ZIP 97224
 BEST PHONE # (503) 914-7160 (Brad)
 CONTACT # ()
 FAX # ()

☐ YES DAYS _____ GUARANTEE ☒ NO TIME IN 1:25 AM/PM
 TIME OUT 2:40 AM/PM

DRAIN	NEED SURV.	FLAT/ HOURLY	\$	AUTH.	WORK PERFORMED	DRAIN CLEANING		
MAIN LINE		HOURLY			<u>Pumped out septic tank 1,000 Gallons for tank to be decommissioned</u>	ADD. DRAINS <input type="checkbox"/>		
KITCHEN SINK		FLAT				SEPTIC PUMP	<u>550</u>	
LAUNDRY LINE		FLAT				GREASE PUMP		
BATH SINK		FLAT				VIDEO INSPECTION		
BATH TUB		FLAT				PIPE LOCATE		
VIDEO		HOURLY				WATER JETTING		
TOILET		FLAT				EXCAVATION		
FLOOR DRAIN		FLAT				PRODUCTS		
AREA DRAIN		HOURLY				PARTS		
RAIN DRAIN		HOURLY	<u>1000 Gall</u>			LABOR		
SEPTIC/GREASE		GAL.	<u>.55</u>			DIAGNOSIS FEE		
VIDEO		HOURLY				SERVICE CALL		
						ROOF/2ND FLOOR		
						SECOND MAN		
					APPROVAL CODE #	CHECK #	PLUMBING	
PARTS					RECOMMENDATIONS			
QTY.	PART#	DESCRIPTION	PRICE		<input type="checkbox"/> ENZYME TREATMENT	<input type="checkbox"/> VIDEO INSPECTION	5% CC FEE	
					<input type="checkbox"/> ROOT KILLER	<input type="checkbox"/> PIPE REPAIR/REPLACEMENT	TOTAL	<u>550</u>
					<input type="checkbox"/> ANNUAL MAINTENANCE	<input type="checkbox"/> CLEANOUT/INSTALLATION	PAYMENT RECEIVED	<u>0</u>
					<input type="checkbox"/> WATER JETTING	<input type="checkbox"/>	BALANCE DUE	<u>550</u>

ADDITIONAL TERMS AND CONDITIONS CONTAINED ON THE REVERSE SIDE OF THIS SHEET

WEBSITE: WESTSIDEDRAIN.COM
 EMAIL: WESTSIDEDRAIN@ICLOUD.COM

x OKed over the phone by Brad
 ACCEPTANCE OF ESTIMATE AND TERMS AND CONDITIONS ACKNOWLEDGEMENT OF COMPLETION

APPENDIX F

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

Instructions for completing this report are on the last page of this form

SKYLES DRILLING, INC.

503-656-2683

WELL ID # L 102674

START CARD # W1038063

(1) OWNER:

Well Number: 01

Name United Excavators, Inc. / Polygon
Address 4804 NW Bethany Blvd, Ste 1-2 PMB 361
City Portland State OR Zip 97224

(2) TYPE OF WORK:

☐ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☒ Abandonment

(3) DRILL METHOD:

☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval ☐ Yes ☒ No Depth of Completed Well 0 ft.
Explosives used ☐ Yes ☒ No Type Amount

HOLE		SEAL		Amount	
Diameter	From To	Material	From To	sacks or pounds	
6		Cement w/5% bentonite	400	7	57 Sacks
		Bentonite	7	0	2 Sacks
Calculated				55 Sacks	

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E

☒ Other Pumped at bottom; Poured bentonite

Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

Diameter	From To	Gauge	Steel	Plastic	Welded	Threaded
Casing: 6	0	263	250	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Existing				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Liner: Pulled				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Drive Shoe used ☐ Inside ☐ Outside ☐ None
Final location of shoe(s) N/A

(7) PERFORATIONS/SCREENS:

Perforations Method Cement Seal-No Perfs
Screens Type Material
From To Slot Number Diameter Tele/pipe Casing Liner
size size size size
None

(8) WELL TESTS: Minimum testing time is 1 hour

Pump ☐ Bailor ☐ Air ☐ Flowing Artesian

Yield gal/min N/A Drawdown Drill stem at Time

Temperature of Water Depth Artesian Flow found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

(9) LOCATION OF WELL by legal description:

County Washington Latitude Longitude
Township 2SOUTH N or S. Range 1WEST E or W. of WM.
Section 08DC SW 1/4 SE 1/4
Tax lot 00101 Lot Block Subdivision
Street Address of Well (or nearest address) 15515 SW 150th Ave,
Tigard, OR

(10) STATIC WATER LEVEL:

250 ft. below land surface. Date 3/23/2018
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:

Depth at which water was first found N/A

From To Estimated Flow Rate SWL

(12) WELL LOG:

Ground elevation

Material From To SWL
Abandonment Only of WASH 69250

Original Start Card W204823

SKYLES DRILLING, INC.

503-656-2683

Date started 3/23/2018

Completed 3/28/2018

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

Signed Skyles Drilling, Inc.

WWC Number 2003

Date 3/28/2018

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

Signed Skyles Drilling, Inc.

WWC Number 1998

Date 3/28/2018

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

Instructions for completing this report are on the last page of this form

SKYLES DRILLING, INC.

503-656-2683

WELL ID # L None

START CARD # W1037958

(1) OWNER:

Well Number: 01

Name United Excavators, Inc. / Polygon
Address 4804 NW Bethany Blvd, Ste 1-2 PMB 361
City Portland State OR Zip 97229

(2) TYPE OF WORK:

New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ ☒ Abandonment

(3) DRILL METHOD:

☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval ☐ Yes ☒ No Depth of Completed Well 0 ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE		SEAL		Amount	
Diameter	From To	Material	From To	sacks or pounds	
6		Cement w/5% bentonite	390	4	107 Sacks
		Bentonite	4	0	1 Sack
Calculated				65 Sacks	

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E

☒ Other Pumped at bottom; Poured bentonite

Backfill placed from _____ ft. to _____ ft. Material _____

Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) CASING/LINER:

Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing: 6	0	40	.250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>Existing</u>							

Liner: Removed

Drive Shoe used ☐ Inside ☐ Outside ☐ None

Final location of shoe(s) N/A

(7) PERFORATIONS/SCREENS:

X Perforations		Method		Material	
Screens	Type	Material	Tele/pipe size	Casing	Liner
From To	Slot size	Number	Diameter		
0 40	1/8x1	550		<input checked="" type="checkbox"/>	<input type="checkbox"/>

(8) WELL TESTS: Minimum testing time is 1 hour

Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min _____ Drawdown _____ Drill stem at _____ Time _____

N/A

Temperature of Water _____ Depth Artesian Flow found _____
Was a water analysis done? ☐ Yes By whom _____
Did any strata contain water not suitable for intended use? ☐ Too little
Salty ☐ Murky ☐ Odor ☐ Colored ☐ Other _____
Depth of strata: _____

(9) LOCATION OF WELL by legal description:

County Washington Latitude _____ Longitude _____
Township 2SOUTH N or S. Range 1WEST E or W. of WM
Section 08DC SW 1/4 SE 1/4
Tax lot 00102 Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) 15745 SW 150th Ave,
Tigard, OR

(10) STATIC WATER LEVEL:

276 ft. below land surface. Date 2/27/2018
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

Depth at which water was first found N/A
From _____ To _____ Estimated Flow Rate _____ SWL _____

(12) WELL LOG:

Ground elevation	Material	From	To	SWL
	Well Abandonment Only			

SKYLES DRILLING, INC.

503-656-2683

Date started 2/27/2018

Completed 3/1/2018

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

Signed _____
Skyles Drilling, Inc.

WWC Number 1884

Date 3/1/2018

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

Signed _____
Skyles Drilling, Inc.

WWC Number 1998

Date 3/1/2018

ORIGINAL - WATER RESOURCES DEPARTMENT

FIRST COPY - CONSTRUCTOR

SECOND COPY - CUSTOMER

APPENDIX G



Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Thursday, September 6, 2018

Kyle Sattler
GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

RE: A8H0743 - River Terrace Crossing - Polygon-145-05

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A8H0743, which was received by the laboratory on 8/24/2018 at 3:15:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

A handwritten signature in cursive script that reads "Philip Nerenberg".

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**

Project Number: **Polygon-145-05**

Project Manager: **Kyle Sattler**

Report ID:

A8H0743 - 09 06 18 1726

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TP Comp-4 (0-2)	A8H0743-01	Soil	08/24/18 13:45	08/24/18 15:15
TP Comp-5 (0-2)	A8H0743-02	Soil	08/24/18 13:55	08/24/18 15:15
TP Comp-6 (0-2)	A8H0743-03	Soil	08/24/18 14:05	08/24/18 15:15
TP Comp-7 (0-2)	A8H0743-04	Soil	08/24/18 14:15	08/24/18 15:15

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-05**Project Manager: **Kyle Sattler****Report ID:****A8H0743 - 09 06 18 1726****ANALYTICAL SAMPLE RESULTS****Organochlorine Pesticides by EPA 8081B**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TP Comp-4 (0-2) (A8H0743-01)		Matrix: Soil			Batch: 8081227			
4,4'-DDD	0.00548	---	0.00105	mg/kg dry	1	08/30/18	EPA 8081B	Q-01
4,4'-DDE	0.0316	---	0.00105	mg/kg dry	1	08/30/18	EPA 8081B	
4,4'-DDT	0.0124	---	0.00105	mg/kg dry	1	08/30/18	EPA 8081B	
Dieldrin	0.0200	---	0.00105	mg/kg dry	1	08/30/18	EPA 8081B	
Surrogate: 2,4,5,6-TCMX (Surr)		Recovery: 65 %		Limits: 42-129 %	1	08/30/18	EPA 8081B	
Decachlorobiphenyl (Surr)		69 %		65-151 %	1	08/30/18	EPA 8081B	
TP Comp-5 (0-2) (A8H0743-02RE1)		Matrix: Soil			Batch: 8081227			
4,4'-DDD	ND	---	0.00113	mg/kg dry	1	08/31/18	EPA 8081B	
4,4'-DDE	0.00530	---	0.00113	mg/kg dry	1	08/31/18	EPA 8081B	
4,4'-DDT	0.0104	---	0.00113	mg/kg dry	1	08/31/18	EPA 8081B	
Dieldrin	0.00651	---	0.00113	mg/kg dry	1	08/31/18	EPA 8081B	
Surrogate: 2,4,5,6-TCMX (Surr)		Recovery: 60 %		Limits: 42-129 %	1	08/31/18	EPA 8081B	
Decachlorobiphenyl (Surr)		66 %		65-151 %	1	08/31/18	EPA 8081B	
TP Comp-6 (0-2) (A8H0743-03)		Matrix: Soil			Batch: 8081227			
4,4'-DDD	ND	---	0.00108	mg/kg dry	1	08/30/18	EPA 8081B	P-11
4,4'-DDE	0.00933	---	0.00108	mg/kg dry	1	08/30/18	EPA 8081B	
4,4'-DDT	0.0144	---	0.00108	mg/kg dry	1	08/30/18	EPA 8081B	
Dieldrin	0.00861	---	0.00108	mg/kg dry	1	08/30/18	EPA 8081B	
Surrogate: 2,4,5,6-TCMX (Surr)		Recovery: 68 %		Limits: 42-129 %	1	08/30/18	EPA 8081B	
Decachlorobiphenyl (Surr)		73 %		65-151 %	1	08/30/18	EPA 8081B	
TP Comp-7 (0-2) (A8H0743-04RE1)		Matrix: Soil			Batch: 8081227			
4,4'-DDD	0.00455	---	0.00102	mg/kg dry	1	08/31/18	EPA 8081B	
4,4'-DDE	0.0191	---	0.00102	mg/kg dry	1	08/31/18	EPA 8081B	
4,4'-DDT	0.00942	---	0.00102	mg/kg dry	1	08/31/18	EPA 8081B	
Dieldrin	0.0171	---	0.00102	mg/kg dry	1	08/31/18	EPA 8081B	
Surrogate: 2,4,5,6-TCMX (Surr)		Recovery: 55 %		Limits: 42-129 %	1	08/31/18	EPA 8081B	
Decachlorobiphenyl (Surr)		67 %		65-151 %	1	08/31/18	EPA 8081B	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-05**Project Manager: **Kyle Sattler****Report ID:****A8H0743 - 09 06 18 1726****ANALYTICAL SAMPLE RESULTS****Total Metals by EPA 6020 (ICPMS)**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TP Comp-4 (0-2) (A8H0743-01)				Matrix: Soil				
Batch: 8090395								
Lead	10.3	---	0.226	mg/kg dry	10	09/05/18	EPA 6020A	
TP Comp-5 (0-2) (A8H0743-02)				Matrix: Soil				
Batch: 8090395								
Lead	8.98	---	0.242	mg/kg dry	10	09/05/18	EPA 6020A	
TP Comp-6 (0-2) (A8H0743-03)				Matrix: Soil				
Batch: 8090395								
Lead	8.98	---	0.235	mg/kg dry	10	09/05/18	EPA 6020A	
TP Comp-7 (0-2) (A8H0743-04)				Matrix: Soil				
Batch: 8090395								
Lead	9.29	---	0.242	mg/kg dry	10	09/05/18	EPA 6020A	

Apex Laboratories

Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-05**Project Manager: **Kyle Sattler****Report ID:****A8H0743 - 09 06 18 1726****ANALYTICAL SAMPLE RESULTS****Percent Dry Weight**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TP Comp-4 (0-2) (A8H0743-01)				Matrix: Soil		Batch: 8081290		
% Solids	86.9	---	1.00	% by Weight	1	08/31/18	EPA 8000C	
TP Comp-5 (0-2) (A8H0743-02)				Matrix: Soil		Batch: 8081290		
% Solids	81.4	---	1.00	% by Weight	1	08/31/18	EPA 8000C	
TP Comp-6 (0-2) (A8H0743-03)				Matrix: Soil		Batch: 8081290		
% Solids	83.0	---	1.00	% by Weight	1	08/31/18	EPA 8000C	
TP Comp-7 (0-2) (A8H0743-04)				Matrix: Soil		Batch: 8081290		
% Solids	85.5	---	1.00	% by Weight	1	08/31/18	EPA 8000C	

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Project: **River Terrace Crossing**Project Number: **Polygon-145-05**Project Manager: **Kyle Sattler****Report ID:****A8H0743 - 09 06 18 1726****QUALITY CONTROL (QC) SAMPLE RESULTS****Organochlorine Pesticides by EPA 8081B**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8081227 - EPA 3546						Soil						
Blank (8081227-BLK1)			Prepared: 08/29/18 07:17 Analyzed: 08/30/18 17:03									
EPA 8081B												
4,4'-DDD	ND	---	0.000833	mg/kg wet	1	---	---	---	---	---	---	
4,4'-DDE	ND	---	0.000833	mg/kg wet	1	---	---	---	---	---	---	
4,4'-DDT	ND	---	0.000833	mg/kg wet	1	---	---	---	---	---	---	
Dieldrin	ND	---	0.000833	mg/kg wet	1	---	---	---	---	---	---	
Surr: 2,4,5,6-TCMX (Surr)		Recovery: 78 %		Limits: 42-129 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		83 %		65-151 %		"						
LCS (8081227-BS1)			Prepared: 08/29/18 07:17 Analyzed: 08/30/18 17:20									
EPA 8081B												
4,4'-DDD	0.0476	---	0.00100	mg/kg wet	1	0.0500	---	95	56-139%	---	---	
4,4'-DDE	0.0479	---	0.00100	mg/kg wet	1	0.0500	---	96	56-134%	---	---	
4,4'-DDT	0.0529	---	0.00100	mg/kg wet	1	0.0500	---	106	50-141%	---	---	
Dieldrin	0.0506	---	0.00100	mg/kg wet	1	0.0500	---	101	56-136%	---	---	
Surr: 2,4,5,6-TCMX (Surr)		Recovery: 65 %		Limits: 42-129 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		88 %		65-151 %		"						
Duplicate (8081227-DUP1)			Prepared: 08/29/18 07:17 Analyzed: 08/30/18 17:55									
QC Source Sample: TP Comp-4 (0-2) (A8H0743-01)												
EPA 8081B												
4,4'-DDD	0.00489	---	0.000992	mg/kg dry	1	---	0.00548	---	---	11	30%	
4,4'-DDE	0.0228	---	0.000992	mg/kg dry	1	---	0.0316	---	---	32	30%	Q-17
4,4'-DDT	0.0109	---	0.000992	mg/kg dry	1	---	0.0124	---	---	13	30%	
Dieldrin	0.0165	---	0.000992	mg/kg dry	1	---	0.0200	---	---	19	30%	
Surr: 2,4,5,6-TCMX (Surr)		Recovery: 61 %		Limits: 42-129 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		67 %		65-151 %		"						
Matrix Spike (8081227-MS1)			Prepared: 08/29/18 07:17 Analyzed: 08/31/18 12:37									
QC Source Sample: Non-SDG (A8H0788-10)												
EPA 8081B												
4,4'-DDD	0.0502	---	0.00103	mg/kg dry	1	0.0515	ND	98	56-139%	---	---	
4,4'-DDE	0.0511	---	0.00103	mg/kg dry	1	0.0515	0.00247	94	56-134%	---	---	
4,4'-DDT	0.0539	---	0.00103	mg/kg dry	1	0.0515	0.00204	101	50-141%	---	---	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

GeoDesign, Inc.

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Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-05**Project Manager: **Kyle Sattler****Report ID:****A8H0743 - 09 06 18 1726****QUALITY CONTROL (QC) SAMPLE RESULTS****Organochlorine Pesticides by EPA 8081B**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8081227 - EPA 3546						Soil						
Matrix Spike (8081227-MS1)			Prepared: 08/29/18 07:17 Analyzed: 08/31/18 12:37									
QC Source Sample: Non-SDG (A8H0788-10)												
Dieldrin	0.0489	---	0.00103	mg/kg dry	1	0.0515	0.00143	92	56-136%	---	---	
Surr: 2,4,5,6-TCMX (Surr)		Recovery: 67 %		Limits: 42-129 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		83 %		65-151 %		"						

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Project: **River Terrace Crossing**
Project Number: **Polygon-145-05**
Project Manager: **Kyle Sattler**

Report ID:
A8H0743 - 09 06 18 1726

QUALITY CONTROL (QC) SAMPLE RESULTS**Total Metals by EPA 6020 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090395 - EPA 3051A						Soil						
Blank (8090395-BLK1)			Prepared: 09/04/18 11:07 Analyzed: 09/05/18 21:59									
EPA 6020A												
Lead	ND	---	0.192	mg/kg wet	10	---	---	---	---	---	---	
LCS (8090395-BS1)			Prepared: 09/04/18 11:07 Analyzed: 09/05/18 22:04									
EPA 6020A												
Lead	50.3	---	0.200	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Duplicate (8090395-DUP1)			Prepared: 09/04/18 11:07 Analyzed: 09/05/18 22:28									
QC Source Sample: TP Comp-7 (0-2) (A8H0743-04)												
EPA 6020A												
Lead	9.75	---	0.235	mg/kg dry	10	---	9.29	---	---	5	40%	
Matrix Spike (8090395-MS1)			Prepared: 09/04/18 11:07 Analyzed: 09/05/18 22:32									
QC Source Sample: TP Comp-7 (0-2) (A8H0743-04)												
EPA 6020A												
Lead	66.0	---	0.226	mg/kg dry	10	56.6	9.29	100	75-125%	---	---	

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Project: **River Terrace Crossing**Project Number: **Polygon-145-05**Project Manager: **Kyle Sattler****Report ID:****A8H0743 - 09 06 18 1726****QUALITY CONTROL (QC) SAMPLE RESULTS****Percent Dry Weight**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8081290 - Total Solids (Dry Weight)							Soil					
Duplicate (8081290-DUP1)			Prepared: 08/30/18 09:20 Analyzed: 08/31/18 08:14									
QC Source Sample: TP Comp-4 (0-2) (A8H0743-01)												
EPA 8000C												
% Solids	86.5	---	1.00	% by Weight	1	---	86.9	---	---	0.5	10%	
Duplicate (8081290-DUP2)			Prepared: 08/30/18 09:20 Analyzed: 08/31/18 08:14									
QC Source Sample: Non-SDG (A8H0821-02)												
% Solids	93.1	---	1.00	% by Weight	1	---	93.1	---	---	0.05	10%	
Duplicate (8081290-DUP3)			Prepared: 08/30/18 09:20 Analyzed: 08/31/18 08:14									
QC Source Sample: Non-SDG (A8H0836-01)												
% Solids	74.7	---	1.00	% by Weight	1	---	75.1	---	---	0.5	10%	
Duplicate (8081290-DUP4)			Prepared: 08/30/18 09:20 Analyzed: 08/31/18 08:14									
QC Source Sample: Non-SDG (A8H0839-02)												
% Solids	93.6	---	1.00	% by Weight	1	---	93.8	---	---	0.2	10%	
Duplicate (8081290-DUP5)			Prepared: 08/30/18 18:39 Analyzed: 08/31/18 08:14									
QC Source Sample: Non-SDG (A8H0898-01)												
% Solids	78.8	---	1.00	% by Weight	1	---	74.1	---	---	6	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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Project: **River Terrace Crossing**Project Number: **Polygon-145-05**Project Manager: **Kyle Sattler****Report ID:****A8H0743 - 09 06 18 1726****SAMPLE PREPARATION INFORMATION****Organochlorine Pesticides by EPA 8081B****Prep: EPA 3546**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8081227							
A8H0743-01	Soil	EPA 8081B	08/24/18 13:45	08/29/18 07:17	10.94g/5mL	10g/5mL	0.91
A8H0743-02RE1	Soil	EPA 8081B	08/24/18 13:55	08/29/18 07:17	10.87g/5mL	10g/5mL	0.92
A8H0743-03	Soil	EPA 8081B	08/24/18 14:05	08/29/18 07:17	11.11g/5mL	10g/5mL	0.90
A8H0743-04RE1	Soil	EPA 8081B	08/24/18 14:15	08/29/18 07:17	11.48g/5mL	10g/5mL	0.87

Total Metals by EPA 6020 (ICPMS)**Prep: EPA 3051A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8090395							
A8H0743-01	Soil	EPA 6020A	08/24/18 13:45	09/04/18 11:07	0.508g/50mL	0.5g/50mL	0.98
A8H0743-02	Soil	EPA 6020A	08/24/18 13:55	09/04/18 11:07	0.507g/50mL	0.5g/50mL	0.99
A8H0743-03	Soil	EPA 6020A	08/24/18 14:05	09/04/18 11:07	0.512g/50mL	0.5g/50mL	0.98
A8H0743-04	Soil	EPA 6020A	08/24/18 14:15	09/04/18 11:07	0.484g/50mL	0.5g/50mL	1.03

Percent Dry Weight**Prep: Total Solids (Dry Weight)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8081290							
A8H0743-01	Soil	EPA 8000C	08/24/18 13:45	08/30/18 09:20			NA
A8H0743-02	Soil	EPA 8000C	08/24/18 13:55	08/30/18 09:20			NA
A8H0743-03	Soil	EPA 8000C	08/24/18 14:05	08/30/18 09:20			NA
A8H0743-04	Soil	EPA 8000C	08/24/18 14:15	08/30/18 09:20			NA

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Project Number: **Polygon-145-05**

Project Manager: **Kyle Sattler**

Report ID:

A8H0743 - 09 06 18 1726

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- P-11** Result estimated. Secondary column confirmation does not meet method criteria due to matrix interference.
- Q-01** Spike recovery and/or RPD is outside acceptance limits.
- Q-17** RPD between original and duplicate sample is outside of established control limits.

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A handwritten signature in black ink that reads "Philip Nerenberg".

Philip Nerenberg, Lab Director

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REPORTING NOTES AND CONVENTIONS:**Abbreviations:**

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.

The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).

-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.

-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

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Project Number: **Polygon-145-05**

Project Manager: **Kyle Sattler**

Report ID:

A8H0743 - 09 06 18 1726

LABORATORY ACCREDITATION INFORMATION**TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039**

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
<u>All reported analytes are included in Apex Laboratories' current ORELAP scope.</u>					

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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Project: River Terrace Crossing

Project Number: Polygon-145-05

Project Manager: Kyle Sattler

Report ID:

A8H0743 - 09 06 18 1726

APEX LABS
12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY
Lab # A8H0743 COC 2 of 1

Company: GeoDesign Inc Project Mgr: Kyle R. Sattler Project Name: River Terrace Crossing Project # Polygon-145-05
Address: 9450 SW Commerce Circle Suite 300 Wilsonville OR Phone: 503-968-7887 Email: ksattler@geodesigninc.com
Sampled by: _____

Site Location: OR WA _____
Other: _____

SAMPLE ID

LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HClD	NWTPH-Dx	NWTPH-Gx	8260 VOCs Full List	8260 RBDM VOCs	8260 HVOCS	8260 BTEX VOCs	8270 SVOC	8270 SIM PAHs	8082 PCBs	600 TTO	RCRA Metals (8)	TCLP Metals (8)	Al, Sb, As, Ba, Be, Cd, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Se, Ag, Na, TL, V, Zn	TOTAL DISS TCLP	1200-COLS	1200-Z
TP Comp-4 (0-2)	09/14/18	1345	↓	1																	
TP Comp-5 (0-2)	↓	1355	↓																		
TP Comp-6 (0-2)	↓	1405	↓																		
TP Comp-7 (0-2)	↓	1415	↓																		

SPECIAL INSTRUCTIONS: GeoDesign special pricing requested by K. Sattler.

RECEIVED BY: _____
Signature: _____ Date: 09/14/18
Printed Name: Andrew D. Begonia Time: 15:15
Company: GeoDesign Inc

RELINQUISHED BY: _____
Signature: _____ Date: 09/24/18
Printed Name: _____ Time: 15:15
Company: Apex

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Project Number: Polygon-145-05
Project Manager: Kyle Sattler

Report ID:
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APEX LABS COOLER RECEIPT FORM

Client: Geodesign Element WO#: A8 H0743

Project/Project #: River Terrace Crossing

Delivery info:

Date/Time Received: 8/24/18 @ 15:15 By: MS

Delivered by: Apex ☒ Client ☒ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐

Cooler Inspection Inspected by: MS : 8/24/18 @ 15:15

Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒

Signed/Dated by Client? Yes ☒ No ☐

Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	<u>3.6</u>						
Received on Ice? (Y/N)	<u>Y</u>						
Temp. Blanks? (Y/N)	<u>N</u>						
Ice Type: (Gel/Real/Other)	<u>Real</u>						
Condition:	<u>Good</u>						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: JS : 8/27/18 @

All Samples Intact? Yes ☒ No ☐ Comments:

Bottle Labels/COCs agree? Yes ☐ No ☒ Comments: T on cont. TP Comp - 7

(0-2) reads 1410

Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments:

Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments:

Water Samples: pH Checked and Appropriate (except VOAs): Yes ☐ No ☐ NA ☒

Comments:

Additional Information:

Labeled by: JS Witness: W Cooler Inspected by: MS See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Friday, September 7, 2018

Kyle Sattler
GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

RE: A8I0077 - River Terrace East Area 10 - Polygon-145-07

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A8I0077, which was received by the laboratory on 9/5/2018 at 3:40:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

A handwritten signature in black ink that reads "Philip Nerenberg".

Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8I0077 - 09 07 18 1600

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-1SE(11.0)	A8I0077-01	Soil	09/05/18 14:00	09/05/18 15:40
SS-2N(10.5)	A8I0077-02	Soil	09/05/18 14:15	09/05/18 15:40
SS-3W(10.0)	A8I0077-03	Soil	09/05/18 14:20	09/05/18 15:40
SS-4E(10.0)	A8I0077-04	Soil	09/05/18 14:30	09/05/18 15:40
SS-5S(7.5)	A8I0077-05	Soil	09/05/18 14:45	09/05/18 15:40
SS-6W(5.0)	A8I0077-06	Soil	09/05/18 14:55	09/05/18 15:40
SS-7E(5.0)	A8I0077-07	Soil	09/05/18 15:05	09/05/18 15:40

Apex Laboratories

Philip Nerenberg, Lab Director

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**GeoDesign, Inc.**9450 SW Commerce Circle
Wilsonville, OR 97070Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810077 - 09 07 18 1600****ANALYTICAL SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-1SE(11.0) (A810077-01)		Matrix: Soil			Batch: 8090426			
Gasoline Range Organics	280	---	27.0	mg/kg dry	200	09/05/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 102 %	Limits: 50-150 %	1	09/05/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		100 %	50-150 %	1	09/05/18	NWTPH-Gx (MS)		
SS-2N(10.5) (A810077-02RE1)		Matrix: Soil			Batch: 8090475			
Gasoline Range Organics	91.1	---	8.31	mg/kg dry	50	09/06/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 101 %	Limits: 50-150 %	1	09/06/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		101 %	50-150 %	1	09/06/18	NWTPH-Gx (MS)		
SS-3W(10.0) (A810077-03RE1)		Matrix: Soil			Batch: 8090475			
Gasoline Range Organics	86.9	---	6.09	mg/kg dry	50	09/06/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 100 %	Limits: 50-150 %	1	09/06/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		97 %	50-150 %	1	09/06/18	NWTPH-Gx (MS)		
SS-4E(10.0) (A810077-04RE1)		Matrix: Soil			Batch: 8090475			
Gasoline Range Organics	ND	---	9.76	mg/kg dry	50	09/06/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 102 %	Limits: 50-150 %	1	09/06/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		96 %	50-150 %	1	09/06/18	NWTPH-Gx (MS)		
SS-5S(7.5) (A810077-05)		Matrix: Soil			Batch: 8090426			
Gasoline Range Organics	ND	---	6.59	mg/kg dry	50	09/05/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 103 %	Limits: 50-150 %	1	09/05/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		93 %	50-150 %	1	09/05/18	NWTPH-Gx (MS)		
SS-6W(5.0) (A810077-06)		Matrix: Soil			Batch: 8090426			
Gasoline Range Organics	ND	---	6.87	mg/kg dry	50	09/05/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 102 %	Limits: 50-150 %	1	09/05/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		93 %	50-150 %	1	09/05/18	NWTPH-Gx (MS)		
SS-7E(5.0) (A810077-07)		Matrix: Soil			Batch: 8090426			
Gasoline Range Organics	ND	---	7.29	mg/kg dry	50	09/05/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 103 %	Limits: 50-150 %	1	09/05/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		93 %	50-150 %	1	09/05/18	NWTPH-Gx (MS)		

Apex Laboratories

Philip Nerenberg, Lab Director

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**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A810077 - 09 07 18 1600

ANALYTICAL SAMPLE RESULTS**Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-1SE(11.0) (A810077-01)				Matrix: Soil		Batch: 8090426		
Benzene	ND	---	0.0540	mg/kg dry	200	09/05/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.270	mg/kg dry	200	09/05/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.135	mg/kg dry	200	09/05/18	5035A/8260C	
Ethylbenzene	0.518	---	0.135	mg/kg dry	200	09/05/18	5035A/8260C	
Isopropylbenzene	ND	---	0.270	mg/kg dry	200	09/05/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.270	mg/kg dry	200	09/05/18	5035A/8260C	
Naphthalene	1.02	---	0.540	mg/kg dry	200	09/05/18	5035A/8260C	
Toluene	ND	---	0.270	mg/kg dry	200	09/05/18	5035A/8260C	
1,2,4-Trimethylbenzene	4.99	---	0.270	mg/kg dry	200	09/05/18	5035A/8260C	
1,3,5-Trimethylbenzene	2.69	---	0.270	mg/kg dry	200	09/05/18	5035A/8260C	
Xylenes, total	0.764	---	0.405	mg/kg dry	200	09/05/18	5035A/8260C	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	102 %	<i>Limits:</i>	80-120 %	1	09/05/18	5035A/8260C
<i>Toluene-d8 (Surr)</i>			99 %		80-120 %	1	09/05/18	5035A/8260C
<i>4-Bromofluorobenzene (Surr)</i>			97 %		80-120 %	1	09/05/18	5035A/8260C
SS-2N(10.5) (A810077-02RE1)				Matrix: Soil		Batch: 8090475		
Benzene	ND	---	0.0166	mg/kg dry	50	09/06/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0831	mg/kg dry	50	09/06/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0416	mg/kg dry	50	09/06/18	5035A/8260C	
Ethylbenzene	ND	---	0.0416	mg/kg dry	50	09/06/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0831	mg/kg dry	50	09/06/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0831	mg/kg dry	50	09/06/18	5035A/8260C	
Naphthalene	ND	---	0.166	mg/kg dry	50	09/06/18	5035A/8260C	
Toluene	ND	---	0.0831	mg/kg dry	50	09/06/18	5035A/8260C	
1,2,4-Trimethylbenzene	0.287	---	0.0831	mg/kg dry	50	09/06/18	5035A/8260C	
1,3,5-Trimethylbenzene	0.417	---	0.0831	mg/kg dry	50	09/06/18	5035A/8260C	
Xylenes, total	ND	---	0.125	mg/kg dry	50	09/06/18	5035A/8260C	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	103 %	<i>Limits:</i>	80-120 %	1	09/06/18	5035A/8260C
<i>Toluene-d8 (Surr)</i>			100 %		80-120 %	1	09/06/18	5035A/8260C
<i>4-Bromofluorobenzene (Surr)</i>			99 %		80-120 %	1	09/06/18	5035A/8260C
SS-3W(10.0) (A810077-03RE1)				Matrix: Soil		Batch: 8090475		
Benzene	ND	---	0.0122	mg/kg dry	50	09/06/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0609	mg/kg dry	50	09/06/18	5035A/8260C	

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place

Tigard, OR 97223

503-718-2323

EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle

Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810077 - 09 07 18 1600****ANALYTICAL SAMPLE RESULTS****Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-3W(10.0) (A810077-03RE1)				Matrix: Soil		Batch: 8090475		
1,2-Dichloroethane (EDC)	ND	---	0.0304	mg/kg dry	50	09/06/18	5035A/8260C	
Ethylbenzene	0.186	---	0.0304	mg/kg dry	50	09/06/18	5035A/8260C	
Isopropylbenzene	0.0858	---	0.0609	mg/kg dry	50	09/06/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0609	mg/kg dry	50	09/06/18	5035A/8260C	
Naphthalene	0.683	---	0.122	mg/kg dry	50	09/06/18	5035A/8260C	
Toluene	ND	---	0.0609	mg/kg dry	50	09/06/18	5035A/8260C	
1,2,4-Trimethylbenzene	2.58	---	0.0609	mg/kg dry	50	09/06/18	5035A/8260C	
1,3,5-Trimethylbenzene	1.03	---	0.0609	mg/kg dry	50	09/06/18	5035A/8260C	
Xylenes, total	0.518	---	0.0913	mg/kg dry	50	09/06/18	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		Recovery:	103 %	Limits: 80-120 %	1	09/06/18	5035A/8260C	
Toluene-d8 (Surr)			99 %	80-120 %	1	09/06/18	5035A/8260C	
4-Bromofluorobenzene (Surr)			101 %	80-120 %	1	09/06/18	5035A/8260C	
SS-4E(10.0) (A810077-04RE1)				Matrix: Soil		Batch: 8090475		
Benzene	ND	---	0.0195	mg/kg dry	50	09/06/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0976	mg/kg dry	50	09/06/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0488	mg/kg dry	50	09/06/18	5035A/8260C	
Ethylbenzene	ND	---	0.0488	mg/kg dry	50	09/06/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0976	mg/kg dry	50	09/06/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0976	mg/kg dry	50	09/06/18	5035A/8260C	
Naphthalene	ND	---	0.195	mg/kg dry	50	09/06/18	5035A/8260C	
Toluene	ND	---	0.0976	mg/kg dry	50	09/06/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0976	mg/kg dry	50	09/06/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0976	mg/kg dry	50	09/06/18	5035A/8260C	
Xylenes, total	ND	---	0.146	mg/kg dry	50	09/06/18	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		Recovery:	104 %	Limits: 80-120 %	1	09/06/18	5035A/8260C	
Toluene-d8 (Surr)			100 %	80-120 %	1	09/06/18	5035A/8260C	
4-Bromofluorobenzene (Surr)			98 %	80-120 %	1	09/06/18	5035A/8260C	
SS-5S(7.5) (A810077-05)				Matrix: Soil		Batch: 8090426		
Benzene	ND	---	0.0132	mg/kg dry	50	09/05/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0659	mg/kg dry	50	09/05/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0330	mg/kg dry	50	09/05/18	5035A/8260C	
Ethylbenzene	ND	---	0.0330	mg/kg dry	50	09/05/18	5035A/8260C	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810077 - 09 07 18 1600****ANALYTICAL SAMPLE RESULTS****Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-5S(7.5) (A810077-05)		Matrix: Soil			Batch: 8090426			
Isopropylbenzene	ND	---	0.0659	mg/kg dry	50	09/05/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0659	mg/kg dry	50	09/05/18	5035A/8260C	
Naphthalene	ND	---	0.132	mg/kg dry	50	09/05/18	5035A/8260C	
Toluene	ND	---	0.0659	mg/kg dry	50	09/05/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0659	mg/kg dry	50	09/05/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0659	mg/kg dry	50	09/05/18	5035A/8260C	
Xylenes, total	ND	---	0.0989	mg/kg dry	50	09/05/18	5035A/8260C	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	102 %	<i>Limits:</i>	80-120 %	1	09/05/18	5035A/8260C
<i>Toluene-d8 (Surr)</i>			99 %		80-120 %	1	09/05/18	5035A/8260C
<i>4-Bromofluorobenzene (Surr)</i>			99 %		80-120 %	1	09/05/18	5035A/8260C
SS-6W(5.0) (A810077-06)		Matrix: Soil			Batch: 8090426			
Benzene	ND	---	0.0137	mg/kg dry	50	09/05/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0687	mg/kg dry	50	09/05/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0343	mg/kg dry	50	09/05/18	5035A/8260C	
Ethylbenzene	ND	---	0.0343	mg/kg dry	50	09/05/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0687	mg/kg dry	50	09/05/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0687	mg/kg dry	50	09/05/18	5035A/8260C	
Naphthalene	ND	---	0.137	mg/kg dry	50	09/05/18	5035A/8260C	
Toluene	ND	---	0.0687	mg/kg dry	50	09/05/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0687	mg/kg dry	50	09/05/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0687	mg/kg dry	50	09/05/18	5035A/8260C	
Xylenes, total	ND	---	0.103	mg/kg dry	50	09/05/18	5035A/8260C	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	102 %	<i>Limits:</i>	80-120 %	1	09/05/18	5035A/8260C
<i>Toluene-d8 (Surr)</i>			99 %		80-120 %	1	09/05/18	5035A/8260C
<i>4-Bromofluorobenzene (Surr)</i>			99 %		80-120 %	1	09/05/18	5035A/8260C
SS-7E(5.0) (A810077-07)		Matrix: Soil			Batch: 8090426			
Benzene	ND	---	0.0146	mg/kg dry	50	09/05/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0729	mg/kg dry	50	09/05/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0365	mg/kg dry	50	09/05/18	5035A/8260C	
Ethylbenzene	ND	---	0.0365	mg/kg dry	50	09/05/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0729	mg/kg dry	50	09/05/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0729	mg/kg dry	50	09/05/18	5035A/8260C	

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Philip Nerenberg, Lab Director

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GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A810077 - 09 07 18 1600

ANALYTICAL SAMPLE RESULTS**Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-7E(5.0) (A810077-07)		Matrix: Soil			Batch: 8090426			
Naphthalene	ND	---	0.146	mg/kg dry	50	09/05/18	5035A/8260C	
Toluene	ND	---	0.0729	mg/kg dry	50	09/05/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0729	mg/kg dry	50	09/05/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0729	mg/kg dry	50	09/05/18	5035A/8260C	
Xylenes, total	ND	---	0.109	mg/kg dry	50	09/05/18	5035A/8260C	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	101 %	<i>Limits:</i>	80-120 %	1	09/05/18	5035A/8260C
<i>Toluene-d8 (Surr)</i>			97 %		80-120 %	1	09/05/18	5035A/8260C
<i>4-Bromofluorobenzene (Surr)</i>			98 %		80-120 %	1	09/05/18	5035A/8260C

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Project: **River Terrace East Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A810077 - 09 07 18 1600

ANALYTICAL SAMPLE RESULTS**Total Metals by EPA 6020 (ICPMS)**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-1SE(11.0) (A8I0077-01)				Matrix: Soil				
Batch: 8090437								
Lead	5.92	---	0.257	mg/kg dry	10	09/05/18	EPA 6020A	
SS-2N(10.5) (A8I0077-02)				Matrix: Soil				
Batch: 8090437								
Lead	6.39	---	0.273	mg/kg dry	10	09/05/18	EPA 6020A	
SS-3W(10.0) (A8I0077-03)				Matrix: Soil				
Batch: 8090437								
Lead	7.66	---	0.257	mg/kg dry	10	09/05/18	EPA 6020A	
SS-4E(10.0) (A8I0077-04)				Matrix: Soil				
Batch: 8090437								
Lead	7.53	---	0.298	mg/kg dry	10	09/05/18	EPA 6020A	
SS-5S(7.5) (A8I0077-05)				Matrix: Soil				
Batch: 8090437								
Lead	9.20	---	0.258	mg/kg dry	10	09/05/18	EPA 6020A	
SS-6W(5.0) (A8I0077-06)				Matrix: Soil				
Batch: 8090437								
Lead	8.64	---	0.263	mg/kg dry	10	09/05/18	EPA 6020A	
SS-7E(5.0) (A8I0077-07)				Matrix: Soil				
Batch: 8090437								
Lead	8.04	---	0.254	mg/kg dry	10	09/05/18	EPA 6020A	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810077 - 09 07 18 1600****ANALYTICAL SAMPLE RESULTS****Percent Dry Weight**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-1SE(11.0) (A810077-01)				Matrix: Soil		Batch: 8090425		
% Solids	75.9	---	1.00	% by Weight	1	09/06/18	EPA 8000C	
SS-2N(10.5) (A810077-02)				Matrix: Soil		Batch: 8090425		
% Solids	72.5	---	1.00	% by Weight	1	09/06/18	EPA 8000C	
SS-3W(10.0) (A810077-03)				Matrix: Soil		Batch: 8090425		
% Solids	80.0	---	1.00	% by Weight	1	09/06/18	EPA 8000C	
SS-4E(10.0) (A810077-04)				Matrix: Soil		Batch: 8090425		
% Solids	66.6	---	1.00	% by Weight	1	09/06/18	EPA 8000C	
SS-5S(7.5) (A810077-05)				Matrix: Soil		Batch: 8090425		
% Solids	76.5	---	1.00	% by Weight	1	09/06/18	EPA 8000C	
SS-6W(5.0) (A810077-06)				Matrix: Soil		Batch: 8090425		
% Solids	78.6	---	1.00	% by Weight	1	09/06/18	EPA 8000C	
SS-7E(5.0) (A810077-07)				Matrix: Soil		Batch: 8090425		
% Solids	79.4	---	1.00	% by Weight	1	09/06/18	EPA 8000C	

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Tigard, OR 97223
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EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810077 - 09 07 18 1600****QUALITY CONTROL (QC) SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090426 - EPA 5035A												Soil
Blank (8090426-BLK1)												Prepared: 09/05/18 08:30 Analyzed: 09/05/18 11:53
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 97 %	Limits: 50-150 %			Dilution: 1x					
1,4-Difluorobenzene (Sur)			93 %	50-150 %			"					
LCS (8090426-BS2)												Prepared: 09/05/18 08:30 Analyzed: 09/05/18 11:26
NWTPH-Gx (MS)												
Gasoline Range Organics	22.3	---	5.00	mg/kg wet	50	25.0	---	89	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 95 %	Limits: 50-150 %			Dilution: 1x					
1,4-Difluorobenzene (Sur)			94 %	50-150 %			"					
Duplicate (8090426-DUP1)												Prepared: 09/04/18 17:05 Analyzed: 09/05/18 13:53
QC Source Sample: Non-SDG (A810033-01)												V-15
Gasoline Range Organics	ND	---	6.96	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 99 %	Limits: 50-150 %			Dilution: 1x					
1,4-Difluorobenzene (Sur)			93 %	50-150 %			"					
Batch 8090475 - EPA 5035A												Soil
Blank (8090475-BLK1)												Prepared: 09/06/18 08:30 Analyzed: 09/06/18 11:28
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 99 %	Limits: 50-150 %			Dilution: 1x					
1,4-Difluorobenzene (Sur)			93 %	50-150 %			"					
LCS (8090475-BS2)												Prepared: 09/06/18 08:30 Analyzed: 09/06/18 11:01
NWTPH-Gx (MS)												
Gasoline Range Organics	24.2	---	5.00	mg/kg wet	50	25.0	---	97	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 99 %	Limits: 50-150 %			Dilution: 1x					
1,4-Difluorobenzene (Sur)			96 %	50-150 %			"					
Duplicate (8090475-DUP1)												Prepared: 09/04/18 13:50 Analyzed: 09/06/18 14:36
QC Source Sample: Non-SDG (A810085-09)												

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503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810077 - 09 07 18 1600

QUALITY CONTROL (QC) SAMPLE RESULTS**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090475 - EPA 5035A						Soil						
Duplicate (8090475-DUP1)			Prepared: 09/04/18 13:50 Analyzed: 09/06/18 14:36									
QC Source Sample: Non-SDG (A810085-09)												
Gasoline Range Organics	ND	---	5.75	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 102 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		94 %		50-150 %		"						

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EPA ID: OR01039

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Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810077 - 09 07 18 1600****QUALITY CONTROL (QC) SAMPLE RESULTS****Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090426 - EPA 5035A						Soil						
Blank (8090426-BLK1)			Prepared: 09/05/18 08:30 Analyzed: 09/05/18 11:53									
5035A/8260C												
Benzene	ND	---	0.00667	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Xylenes, total	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 101 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		101 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		96 %		80-120 %		"						
LCS (8090426-BS1)			Prepared: 09/05/18 08:30 Analyzed: 09/05/18 10:59									
5035A/8260C												
Benzene	0.970	---	0.0100	mg/kg wet	50	1.00	---	97	80-120%	---	---	
1,2-Dibromoethane (EDB)	0.967	---	0.0500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
1,2-Dichloroethane (EDC)	0.890	---	0.0250	mg/kg wet	50	1.00	---	89	80-120%	---	---	
Ethylbenzene	0.978	---	0.0250	mg/kg wet	50	1.00	---	98	80-120%	---	---	
Isopropylbenzene	0.994	---	0.0500	mg/kg wet	50	1.00	---	99	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	0.874	---	0.0500	mg/kg wet	50	1.00	---	87	80-120%	---	---	
Naphthalene	1.12	---	0.100	mg/kg wet	50	1.00	---	112	80-120%	---	---	
Toluene	0.962	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
1,2,4-Trimethylbenzene	0.927	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
1,3,5-Trimethylbenzene	0.951	---	0.0500	mg/kg wet	50	1.00	---	95	80-120%	---	---	
Xylenes, total	2.83	---	0.0750	mg/kg wet	50	3.00	---	94	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 101 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		104 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		96 %		80-120 %		"						

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810077 - 09 07 18 1600****QUALITY CONTROL (QC) SAMPLE RESULTS****Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090426 - EPA 5035A						Soil						
Duplicate (8090426-DUP1)			Prepared: 09/04/18 17:05		Analyzed: 09/05/18 13:53		V-15					
QC Source Sample: Non-SDG (A810033-01)												
Benzene	ND	---	0.0139	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	0.0696	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	0.0348	mg/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	0.0348	mg/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	0.0696	mg/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	0.0696	mg/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	---	0.139	mg/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	---	0.0696	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	0.0696	mg/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	0.0696	mg/kg dry	50	---	ND	---	---	---	30%	
Xylenes, total	ND	---	0.104	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 101 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		100 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		98 %		80-120 %		"						

Matrix Spike (8090426-MS1)					Prepared: 09/05/18 12:00 Analyzed: 09/05/18 14:46					V-16, V-21	
QC Source Sample: Non-SDG (A8H0876-01)											
5035A/8260C											
Benzene	2.38	---	0.0238	mg/kg dry	50	2.38	ND	100	77-121%	---	---
1,2-Dibromoethane (EDB)	2.45	---	0.119	mg/kg dry	50	2.38	ND	103	78-122%	---	---
1,2-Dichloroethane (EDC)	2.25	---	0.0594	mg/kg dry	50	2.38	ND	95	73-128%	---	---
Ethylbenzene	2.24	---	0.0594	mg/kg dry	50	2.38	ND	94	76-122%	---	---
Isopropylbenzene	2.26	---	0.119	mg/kg dry	50	2.38	ND	95	68-134%	---	---
Methyl tert-butyl ether (MTBE)	2.19	---	0.119	mg/kg dry	50	2.38	ND	92	73-125%	---	---
Naphthalene	2.44	---	0.238	mg/kg dry	50	2.38	ND	102	62-129%	---	---
Toluene	2.23	---	0.119	mg/kg dry	50	2.38	ND	94	77-121%	---	---
1,2,4-Trimethylbenzene	2.12	---	0.119	mg/kg dry	50	2.38	ND	89	75-123%	---	---
1,3,5-Trimethylbenzene	2.16	---	0.119	mg/kg dry	50	2.38	ND	91	73-124%	---	---
Xylenes, total	6.62	---	0.178	mg/kg dry	50	7.14	ND	93	78-124%	---	---
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 101 %		Limits: 80-120 %		Dilution: 1x					
Toluene-d8 (Surr)		99 %		80-120 %		"					

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Tigard, OR 97223
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EPA ID: OR01039

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Wilsonville, OR 97070

Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810077 - 09 07 18 1600

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090426 - EPA 5035A							Soil					
Matrix Spike (8090426-MS1)			Prepared: 09/05/18 12:00		Analyzed: 09/05/18 14:46		V-16, V-21					
QC Source Sample: Non-SDG (A8H0876-01)												
Surr: 4-Bromofluorobenzene (Surr)				Recovery: 99 %		Limits: 80-120 %		Dilution: 1x				

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Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810077 - 09 07 18 1600****QUALITY CONTROL (QC) SAMPLE RESULTS****Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090475 - EPA 5035A						Soil						
Blank (8090475-BLK1)			Prepared: 09/06/18 08:30 Analyzed: 09/06/18 11:28									
5035A/8260C												
Benzene	ND	---	0.00667	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Xylenes, total	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery:		102 %	Limits: 80-120 %		Dilution: 1x					
Toluene-d8 (Surr)				100 %	80-120 %		"					
4-Bromofluorobenzene (Surr)				97 %	80-120 %		"					
LCS (8090475-BS1)			Prepared: 09/06/18 08:30 Analyzed: 09/06/18 10:34									
5035A/8260C												
Benzene	0.993	---	0.0100	mg/kg wet	50	1.00	---	99	80-120%	---	---	
1,2-Dibromoethane (EDB)	0.950	---	0.0500	mg/kg wet	50	1.00	---	95	80-120%	---	---	
1,2-Dichloroethane (EDC)	0.912	---	0.0250	mg/kg wet	50	1.00	---	91	80-120%	---	---	
Ethylbenzene	0.939	---	0.0250	mg/kg wet	50	1.00	---	94	80-120%	---	---	
Isopropylbenzene	0.956	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	0.902	---	0.0500	mg/kg wet	50	1.00	---	90	80-120%	---	---	
Naphthalene	1.00	---	0.100	mg/kg wet	50	1.00	---	100	80-120%	---	---	
Toluene	0.924	---	0.0500	mg/kg wet	50	1.00	---	92	80-120%	---	---	
1,2,4-Trimethylbenzene	0.878	---	0.0500	mg/kg wet	50	1.00	---	88	80-120%	---	---	
1,3,5-Trimethylbenzene	0.892	---	0.0500	mg/kg wet	50	1.00	---	89	80-120%	---	---	
Xylenes, total	2.75	---	0.0750	mg/kg wet	50	3.00	---	92	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery:		102 %	Limits: 80-120 %		Dilution: 1x					
Toluene-d8 (Surr)				101 %	80-120 %		"					
4-Bromofluorobenzene (Surr)				97 %	80-120 %		"					

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GeoDesign, Inc.

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Wilsonville, OR 97070

Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810077 - 09 07 18 1600

QUALITY CONTROL (QC) SAMPLE RESULTS**Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090475 - EPA 5035A						Soil						
Duplicate (8090475-DUP1)			Prepared: 09/04/18 13:50 Analyzed: 09/06/18 14:36									
QC Source Sample: Non-SDG (A810085-09)												
Benzene	ND	---	0.0115	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	0.0575	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	0.0287	mg/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	0.0287	mg/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	0.0575	mg/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	0.0575	mg/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	---	0.115	mg/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	---	0.0575	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	0.0575	mg/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	0.0575	mg/kg dry	50	---	ND	---	---	---	30%	
Xylenes, total	ND	---	0.0862	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 102 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		99 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		97 %		80-120 %		"						

Matrix Spike (8090475-MS1)

Prepared: 09/04/18 13:50 Analyzed: 09/06/18 15:03

QC Source Sample: Non-SDG (A810085-09)**5035A/8260C**

Benzene	1.08	---	0.0105	mg/kg dry	50	1.05	ND	103	77-121%	---	---	
1,2-Dibromoethane (EDB)	1.05	---	0.0527	mg/kg dry	50	1.05	ND	99	78-122%	---	---	
1,2-Dichloroethane (EDC)	1.02	---	0.0263	mg/kg dry	50	1.05	ND	97	73-128%	---	---	
Ethylbenzene	0.992	---	0.0263	mg/kg dry	50	1.05	ND	94	76-122%	---	---	
Isopropylbenzene	1.00	---	0.0527	mg/kg dry	50	1.05	ND	95	68-134%	---	---	
Methyl tert-butyl ether (MTBE)	0.969	---	0.0527	mg/kg dry	50	1.05	ND	92	73-125%	---	---	
Naphthalene	1.04	---	0.105	mg/kg dry	50	1.05	ND	99	62-129%	---	---	
Toluene	0.978	---	0.0527	mg/kg dry	50	1.05	ND	93	77-121%	---	---	
1,2,4-Trimethylbenzene	0.930	---	0.0527	mg/kg dry	50	1.05	ND	88	75-123%	---	---	
1,3,5-Trimethylbenzene	0.939	---	0.0527	mg/kg dry	50	1.05	ND	89	73-124%	---	---	
Xylenes, total	2.90	---	0.0790	mg/kg dry	50	3.16	ND	92	78-124%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr) Recovery: 103 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr) 99 % 80-120 % "</i>												

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Philip Nerenberg, Lab Director



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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810077 - 09 07 18 1600

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090475 - EPA 5035A							Soil					
Matrix Spike (8090475-MS1)			Prepared: 09/04/18 13:50 Analyzed: 09/06/18 15:03									
QC Source Sample: Non-SDG (A8I0085-09)												
Surr: 4-Bromofluorobenzene (Surr)				Recovery: 98 %		Limits: 80-120 %		Dilution: 1x				

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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810077 - 09 07 18 1600****QUALITY CONTROL (QC) SAMPLE RESULTS****Total Metals by EPA 6020 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090437 - EPA 3051A						Soil						
Blank (8090437-BLK1)			Prepared: 09/05/18 10:36 Analyzed: 09/05/18 20:32									
EPA 6020A												
Lead	ND	---	0.192	mg/kg wet	10	---	---	---	---	---	---	
LCS (8090437-BS1)			Prepared: 09/05/18 10:36 Analyzed: 09/05/18 20:37									
EPA 6020A												
Lead	49.1	---	0.200	mg/kg wet	10	50.0	---	98	80-120%	---	---	
Duplicate (8090437-DUP1)			Prepared: 09/05/18 10:36 Analyzed: 09/05/18 21:06									
QC Source Sample: Non-SDG (A810022-03)												
Lead	4.97	---	0.273	mg/kg dry	10	---	4.60	---	---	8	40%	
Matrix Spike (8090437-MS1)			Prepared: 09/05/18 10:36 Analyzed: 09/05/18 21:11									
QC Source Sample: Non-SDG (A810022-03)												
EPA 6020A												
Lead	76.1	---	0.293	mg/kg dry	10	73.1	4.60	98	75-125%	---	---	

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Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810077 - 09 07 18 1600****QUALITY CONTROL (QC) SAMPLE RESULTS****Percent Dry Weight**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090425 - Total Solids (Dry Weight)							Soil					
Duplicate (8090425-DUP1)			Prepared: 09/05/18 09:49		Analyzed: 09/06/18 08:41							
QC Source Sample: Non-SDG (A810008-01)												
% Solids	96.0	---	1.00	% by Weight	1	---	96.0	---	---	0.08	10%	
Duplicate (8090425-DUP2)			Prepared: 09/05/18 09:49		Analyzed: 09/06/18 08:41							
QC Source Sample: Non-SDG (A810022-01)												
% Solids	73.9	---	1.00	% by Weight	1	---	74.0	---	---	0.06	10%	
Duplicate (8090425-DUP3)			Prepared: 09/05/18 09:49		Analyzed: 09/06/18 08:41							
QC Source Sample: Non-SDG (A810044-01)												
% Solids	83.0	---	1.00	% by Weight	1	---	84.2	---	---	1	10%	
Duplicate (8090425-DUP4)			Prepared: 09/05/18 17:25		Analyzed: 09/06/18 08:41							
QC Source Sample: SS-4E(10.0) (A810077-04)												
EPA 8000C												
% Solids	68.4	---	1.00	% by Weight	1	---	66.6	---	---	3	10%	
Duplicate (8090425-DUP5)			Prepared: 09/05/18 19:33		Analyzed: 09/06/18 08:41							
QC Source Sample: Non-SDG (A810087-02)												
% Solids	90.4	---	1.00	% by Weight	1	---	89.9	---	---	0.5	10%	
Duplicate (8090425-DUP6)			Prepared: 09/05/18 19:33		Analyzed: 09/06/18 08:41							
QC Source Sample: Non-SDG (A810091-02)												
% Solids	79.9	---	1.00	% by Weight	1	---	80.1	---	---	0.3	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810077 - 09 07 18 1600****SAMPLE PREPARATION INFORMATION****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx****Prep: EPA 5035A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8090426							
A810077-01	Soil	NWTPH-Gx (MS)	09/05/18 14:00	09/05/18 14:00	6.38g/5mL	5g/5mL	0.78
A810077-05	Soil	NWTPH-Gx (MS)	09/05/18 14:45	09/05/18 14:45	6.47g/5mL	5g/5mL	0.77
A810077-06	Soil	NWTPH-Gx (MS)	09/05/18 14:55	09/05/18 14:55	5.77g/5mL	5g/5mL	0.87
A810077-07	Soil	NWTPH-Gx (MS)	09/05/18 15:05	09/05/18 15:05	5.25g/5mL	5g/5mL	0.95
Batch: 8090475							
A810077-02RE1	Soil	NWTPH-Gx (MS)	09/05/18 14:15	09/05/18 14:15	5.38g/5mL	5g/5mL	0.93
A810077-03RE1	Soil	NWTPH-Gx (MS)	09/05/18 14:20	09/05/18 14:20	6.47g/5mL	5g/5mL	0.77
A810077-04RE1	Soil	NWTPH-Gx (MS)	09/05/18 14:30	09/05/18 14:30	5.18g/5mL	5g/5mL	0.97

Selected Volatile Organic Compounds by EPA 5035A/8260C**Prep: EPA 5035A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8090426							
A810077-01	Soil	5035A/8260C	09/05/18 14:00	09/05/18 14:00	6.38g/5mL	5g/5mL	0.78
A810077-05	Soil	5035A/8260C	09/05/18 14:45	09/05/18 14:45	6.47g/5mL	5g/5mL	0.77
A810077-06	Soil	5035A/8260C	09/05/18 14:55	09/05/18 14:55	5.77g/5mL	5g/5mL	0.87
A810077-07	Soil	5035A/8260C	09/05/18 15:05	09/05/18 15:05	5.25g/5mL	5g/5mL	0.95
Batch: 8090475							
A810077-02RE1	Soil	5035A/8260C	09/05/18 14:15	09/05/18 14:15	5.38g/5mL	5g/5mL	0.93
A810077-03RE1	Soil	5035A/8260C	09/05/18 14:20	09/05/18 14:20	6.47g/5mL	5g/5mL	0.77
A810077-04RE1	Soil	5035A/8260C	09/05/18 14:30	09/05/18 14:30	5.18g/5mL	5g/5mL	0.97

Total Metals by EPA 6020 (ICPMS)**Prep: EPA 3051A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8090437							
A810077-01	Soil	EPA 6020A	09/05/18 14:00	09/05/18 16:18	0.512g/50mL	0.5g/50mL	0.98
A810077-02	Soil	EPA 6020A	09/05/18 14:15	09/05/18 16:18	0.505g/50mL	0.5g/50mL	0.99
A810077-03	Soil	EPA 6020A	09/05/18 14:20	09/05/18 16:18	0.486g/50mL	0.5g/50mL	1.03
A810077-04	Soil	EPA 6020A	09/05/18 14:30	09/05/18 16:18	0.505g/50mL	0.5g/50mL	0.99
A810077-05	Soil	EPA 6020A	09/05/18 14:45	09/05/18 16:18	0.506g/50mL	0.5g/50mL	0.99
A810077-06	Soil	EPA 6020A	09/05/18 14:55	09/05/18 16:18	0.484g/50mL	0.5g/50mL	1.03
A810077-07	Soil	EPA 6020A	09/05/18 15:05	09/05/18 16:18	0.496g/50mL	0.5g/50mL	1.01

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Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810077 - 09 07 18 1600

SAMPLE PREPARATION INFORMATION**Total Metals by EPA 6020 (ICPMS)****Percent Dry Weight****Prep: Total Solids (Dry Weight)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8090425</u>							
A810077-01	Soil	EPA 8000C	09/05/18 14:00	09/05/18 17:25			NA
A810077-02	Soil	EPA 8000C	09/05/18 14:15	09/05/18 17:25			NA
A810077-03	Soil	EPA 8000C	09/05/18 14:20	09/05/18 17:25			NA
A810077-04	Soil	EPA 8000C	09/05/18 14:30	09/05/18 17:25			NA
A810077-05	Soil	EPA 8000C	09/05/18 14:45	09/05/18 17:25			NA
A810077-06	Soil	EPA 8000C	09/05/18 14:55	09/05/18 17:25			NA
A810077-07	Soil	EPA 8000C	09/05/18 15:05	09/05/18 17:25			NA

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QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- V-15** Sample aliquot was subsampled from the sample container. The subsampled aliquot was preserved in the laboratory within 48 hours of sampling.
- V-16** Sample aliquot was subsampled from the sample container in the laboratory. The subsampled aliquot was not preserved within 48 hours of sampling.
- V-21** Sample aliquot was subsampled from a sample container that had been previously opened and had sample removed for another analysis.

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A handwritten signature in black ink that reads "Philip Nerenberg".

Philip Nerenberg, Lab Director

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REPORTING NOTES AND CONVENTIONS:**Abbreviations:**

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.

The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")

See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).

-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.

-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

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LABORATORY ACCREDITATION INFORMATION**TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039**

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
<u>All reported analytes are included in Apex Laboratories' current ORELAP scope.</u>					

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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Project Number: Polygon-145-07

Project Manager: Kyle Sattler

Report ID:

A810077 - 09 07 18 1600

APEX LABS **CHAIN OF CUSTODY**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: GeoDesign Inc Project Mgr: Kyle R. Sattler Project Name: Polygon-145-07 Project # 1200-Z

Address: 9450 SW Commerce Circle Suite 300 Wilsonville, OR 97070 Phone: 503-988-8767 Email: ksattler@godesigninc.com

Sampled by: Andrei DeLong

Site Location: WA Other: OG

LAB ID # DATE TIME MATRIX # OF CONTAINERS

SAMPLE ID	DATE	TIME	MATRIX	# OF CONTAINERS	ANALYSIS REQUEST
SS-1 SF (11.0)	09/06/18	1400	X	3	Al, Sb, As, Ba, Be, Bi, Cd, Ca, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Se, Ag, Na, TL, V, Zn
SS-2 M (10.5)	09/06/18	1415	X	3	TCLP Metals (8)
SS-3 M (10.0)	09/06/18	1420	X	3	RCRA Metals (8)
SS-4 E (10.0)	09/06/18	1430	X	3	600 TTO
SS-5 S (7.5)	09/06/18	1445	X	3	8082 PCBs
SS-6 M (5.0)	09/06/18	1455	X	3	8270 SIM PAHs
SS-7 F (5.0)	09/06/18	1505	X	3	8270 SVOC

SPECIAL INSTRUCTIONS:

Normal Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle): 1 Day 2 Day 3 Day 4 DAY 5 DAY Other: _____

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Andrei DeLong Date: 09/06/18 Signature: [Signature]

RECEIVED BY: Cam Obrien Date: 09/07/18 Signature: [Signature]

Printed Name: Andrei DeLong Time: 1540 Printed Name: Cam Obrien Time: 1340

Company: GeoDesign Inc Company: Apex

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Project Number: Polygon-145-07
Project Manager: Kyle Sattler

Report ID:
A810077 - 09 07 18 1600

APEX LABS COOLER RECEIPT FORM

Client: GeoDesign Element WO#: A8 10077

Project/Project #: Polygon-145-07

Delivery info:

Date/Time Received: 9/5/18 @ 1540 By: OB

Delivered by: Apex ☒ Client ☒ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐

Cooler Inspection Inspected by: OB : 9/5/18 @ 1540

Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒

Signed/Dated by Client? Yes ☒ No ☐

Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	<u>1.3</u>						
Received on Ice? (Y/N)	<u>Y</u>						
Temp. Blanks? (Y/N)	<u>N</u>						
Ice Type: (Gel/Real/Other)	<u>Real</u>						
Condition:							

Cooler out of temp? (Y/N) ☒ Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA ☒

Samples Inspection: Inspected by: OB : 9/5/18 @ 1540

All Samples Intact? Yes ☒ No ☐ Comments:

Bottle Labels/COCs agree? Yes ☐ No ☒ Comments:

09/09/18, 10/1 reads 9/5/18 for SS-3W (10.0)

Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments:

Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments:

Water Samples: pH Checked and Appropriate (except VOAs): Yes ☐ No ☐ NA ☒

Comments:

Additional Information:

Labeled by: AKC Witness: TS Cooler Inspected by: OB See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Monday, September 10, 2018

Kyle Sattler
GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

RE: A8I0176 - River Terrace East Area 10 - Polygon-145-07

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A8I0176, which was received by the laboratory on 9/7/2018 at 2:25:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



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A handwritten signature in black ink that reads "Philip Nerenberg".

Philip Nerenberg, Lab Director

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GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8I0176 - 09 10 18 1721

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-8W(10)	A8I0176-01	Soil	09/07/18 13:00	09/07/18 14:25
SS-9S(10)	A8I0176-02	Soil	09/07/18 13:05	09/07/18 14:25
SS-10E(10)	A8I0176-03	Soil	09/07/18 13:10	09/07/18 14:25

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Philip Nerenberg, Lab Director

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GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810176 - 09 10 18 1721****ANALYTICAL SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-8W(10) (A810176-01)				Matrix: Soil		Batch: 8090520		
Gasoline Range Organics	ND	---	11.3	mg/kg dry	50	09/07/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	105 %	Limits: 50-150 %	1	09/07/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			94 %	50-150 %	1	09/07/18	NWTPH-Gx (MS)	
SS-9S(10) (A810176-02)				Matrix: Soil		Batch: 8090520		
Gasoline Range Organics	ND	---	8.46	mg/kg dry	50	09/07/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	99 %	Limits: 50-150 %	1	09/07/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			92 %	50-150 %	1	09/07/18	NWTPH-Gx (MS)	
SS-10E(10) (A810176-03)				Matrix: Soil		Batch: 8090520		
Gasoline Range Organics	ND	---	6.70	mg/kg dry	50	09/07/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	103 %	Limits: 50-150 %	1	09/07/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			93 %	50-150 %	1	09/07/18	NWTPH-Gx (MS)	

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EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810176 - 09 10 18 1721****ANALYTICAL SAMPLE RESULTS****Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-8W(10) (A810176-01)		Matrix: Soil			Batch: 8090520			
Benzene	ND	---	0.0227	mg/kg dry	50	09/07/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.113	mg/kg dry	50	09/07/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0566	mg/kg dry	50	09/07/18	5035A/8260C	
Ethylbenzene	ND	---	0.0566	mg/kg dry	50	09/07/18	5035A/8260C	
Isopropylbenzene	ND	---	0.113	mg/kg dry	50	09/07/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.113	mg/kg dry	50	09/07/18	5035A/8260C	
Naphthalene	ND	---	0.227	mg/kg dry	50	09/07/18	5035A/8260C	
Toluene	ND	---	0.113	mg/kg dry	50	09/07/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.113	mg/kg dry	50	09/07/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.113	mg/kg dry	50	09/07/18	5035A/8260C	
Xylenes, total	ND	---	0.170	mg/kg dry	50	09/07/18	5035A/8260C	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	103 %	<i>Limits:</i>	80-120 %	1	09/07/18	5035A/8260C
<i>Toluene-d8 (Surr)</i>			98 %		80-120 %	1	09/07/18	5035A/8260C
<i>4-Bromofluorobenzene (Surr)</i>			98 %		80-120 %	1	09/07/18	5035A/8260C
SS-9S(10) (A810176-02)		Matrix: Soil			Batch: 8090520			
Benzene	ND	---	0.0169	mg/kg dry	50	09/07/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0846	mg/kg dry	50	09/07/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0423	mg/kg dry	50	09/07/18	5035A/8260C	
Ethylbenzene	ND	---	0.0423	mg/kg dry	50	09/07/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0846	mg/kg dry	50	09/07/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0846	mg/kg dry	50	09/07/18	5035A/8260C	
Naphthalene	ND	---	0.169	mg/kg dry	50	09/07/18	5035A/8260C	
Toluene	ND	---	0.0846	mg/kg dry	50	09/07/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0846	mg/kg dry	50	09/07/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0846	mg/kg dry	50	09/07/18	5035A/8260C	
Xylenes, total	ND	---	0.127	mg/kg dry	50	09/07/18	5035A/8260C	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	101 %	<i>Limits:</i>	80-120 %	1	09/07/18	5035A/8260C
<i>Toluene-d8 (Surr)</i>			100 %		80-120 %	1	09/07/18	5035A/8260C
<i>4-Bromofluorobenzene (Surr)</i>			97 %		80-120 %	1	09/07/18	5035A/8260C
SS-10E(10) (A810176-03)		Matrix: Soil			Batch: 8090520			
Benzene	ND	---	0.0134	mg/kg dry	50	09/07/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0670	mg/kg dry	50	09/07/18	5035A/8260C	

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810176 - 09 10 18 1721****ANALYTICAL SAMPLE RESULTS****Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-10E(10) (A810176-03)				Matrix: Soil		Batch: 8090520		
1,2-Dichloroethane (EDC)	ND	---	0.0335	mg/kg dry	50	09/07/18	5035A/8260C	
Ethylbenzene	ND	---	0.0335	mg/kg dry	50	09/07/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0670	mg/kg dry	50	09/07/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0670	mg/kg dry	50	09/07/18	5035A/8260C	
Naphthalene	ND	---	0.134	mg/kg dry	50	09/07/18	5035A/8260C	
Toluene	ND	---	0.0670	mg/kg dry	50	09/07/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0670	mg/kg dry	50	09/07/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0670	mg/kg dry	50	09/07/18	5035A/8260C	
Xylenes, total	ND	---	0.101	mg/kg dry	50	09/07/18	5035A/8260C	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i> 102 %		<i>Limits:</i> 80-120 %	1	09/07/18	5035A/8260C	
<i>Toluene-d8 (Surr)</i>		98 %		80-120 %	1	09/07/18	5035A/8260C	
<i>4-Bromofluorobenzene (Surr)</i>		99 %		80-120 %	1	09/07/18	5035A/8260C	

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9450 SW Commerce Circle
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Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810176 - 09 10 18 1721****ANALYTICAL SAMPLE RESULTS****Total Metals by EPA 6020 (ICPMS)**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-8W(10) (A8I0176-01)				Matrix: Soil				
Batch: 8090546								
Lead	9.31	---	0.301	mg/kg dry	10	09/07/18	EPA 6020A	
SS-9S(10) (A8I0176-02)				Matrix: Soil				
Batch: 8090546								
Lead	27.1	---	0.299	mg/kg dry	10	09/07/18	EPA 6020A	
SS-10E(10) (A8I0176-03)				Matrix: Soil				
Batch: 8090546								
Lead	8.64	---	0.283	mg/kg dry	10	09/07/18	EPA 6020A	

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Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810176 - 09 10 18 1721

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-8W(10) (A810176-01)				Matrix: Soil		Batch: 8090524		
% Solids	70.9	---	1.00	% by Weight	1	09/10/18	EPA 8000C	
SS-9S(10) (A810176-02)				Matrix: Soil		Batch: 8090524		
% Solids	72.7	---	1.00	% by Weight	1	09/10/18	EPA 8000C	
SS-10E(10) (A810176-03)				Matrix: Soil		Batch: 8090524		
% Solids	70.9	---	1.00	% by Weight	1	09/10/18	EPA 8000C	

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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810176 - 09 10 18 1721****QUALITY CONTROL (QC) SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090520 - EPA 5035A						Soil						
Blank (8090520-BLK1)			Prepared: 09/07/18 08:30		Analyzed: 09/07/18 12:08							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery:	100 %	Limits:	50-150 %	Dilution: 1x						
1,4-Difluorobenzene (Sur)			93 %		50-150 %	"						
LCS (8090520-BS2)			Prepared: 09/07/18 08:30		Analyzed: 09/07/18 10:48							
NWTPH-Gx (MS)												
Gasoline Range Organics	23.3	---	5.00	mg/kg wet	50	25.0	---	93	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery:	111 %	Limits:	50-150 %	Dilution: 1x						
1,4-Difluorobenzene (Sur)			95 %		50-150 %	"						
Duplicate (8090520-DUP1)			Prepared: 09/04/18 17:05		Analyzed: 09/07/18 13:04							V-15
QC Source Sample: Non-SDG (A810033-02)												
Gasoline Range Organics	ND	---	5.45	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)		Recovery:	102 %	Limits:	50-150 %	Dilution: 1x						
1,4-Difluorobenzene (Sur)			93 %		50-150 %	"						

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Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810176 - 09 10 18 1721****QUALITY CONTROL (QC) SAMPLE RESULTS****Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090520 - EPA 5035A						Soil						
Blank (8090520-BLK1)			Prepared: 09/07/18 08:30 Analyzed: 09/07/18 12:08									
5035A/8260C												
Benzene	ND	---	0.00667	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Xylenes, total	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 102 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		100 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		98 %		80-120 %		"						
LCS (8090520-BS3)			Prepared: 09/07/18 10:00 Analyzed: 09/07/18 11:14									
5035A/8260C												
Benzene	1.01	---	0.0100	mg/kg wet	50	1.00	---	101	80-120%	---	---	
1,2-Dibromoethane (EDB)	0.982	---	0.0500	mg/kg wet	50	1.00	---	98	80-120%	---	---	
1,2-Dichloroethane (EDC)	0.948	---	0.0250	mg/kg wet	50	1.00	---	95	80-120%	---	---	
Ethylbenzene	0.974	---	0.0250	mg/kg wet	50	1.00	---	97	80-120%	---	---	
Isopropylbenzene	1.00	---	0.0500	mg/kg wet	50	1.00	---	100	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	0.932	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Naphthalene	1.01	---	0.100	mg/kg wet	50	1.00	---	101	80-120%	---	---	
Toluene	0.952	---	0.0500	mg/kg wet	50	1.00	---	95	80-120%	---	---	
1,2,4-Trimethylbenzene	0.912	---	0.0500	mg/kg wet	50	1.00	---	91	80-120%	---	---	
1,3,5-Trimethylbenzene	0.926	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Xylenes, total	2.86	---	0.0750	mg/kg wet	50	3.00	---	96	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 103 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		99 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		98 %		80-120 %		"						

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EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810176 - 09 10 18 1721****QUALITY CONTROL (QC) SAMPLE RESULTS****Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090520 - EPA 5035A						Soil						
Duplicate (8090520-DUP1)			Prepared: 09/04/18 17:05		Analyzed: 09/07/18 13:04						V-15	
QC Source Sample: Non-SDG (A810033-02)												
Benzene	ND	---	0.0109	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	0.0545	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	0.0272	mg/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	0.0272	mg/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	0.0545	mg/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	0.0545	mg/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	---	0.109	mg/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	---	0.0545	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	0.0545	mg/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	0.0545	mg/kg dry	50	---	ND	---	---	---	30%	
Xylenes, total	ND	---	0.0817	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 102 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		99 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		98 %		80-120 %		"						

Matrix Spike (8090520-MS1)					Prepared: 09/04/18 17:05 Analyzed: 09/07/18 14:51					V-15	
QC Source Sample: Non-SDG (A810033-05)											
5035A/8260C											
Benzene	1.42	---	0.0146	mg/kg dry	50	1.46	ND	97	77-121%	---	---
1,2-Dibromoethane (EDB)	1.42	---	0.0729	mg/kg dry	50	1.46	ND	97	78-122%	---	---
1,2-Dichloroethane (EDC)	1.34	---	0.0364	mg/kg dry	50	1.46	ND	92	73-128%	---	---
Ethylbenzene	1.34	---	0.0364	mg/kg dry	50	1.46	ND	92	76-122%	---	---
Isopropylbenzene	1.36	---	0.0729	mg/kg dry	50	1.46	ND	94	68-134%	---	---
Methyl tert-butyl ether (MTBE)	1.33	---	0.0729	mg/kg dry	50	1.46	ND	91	73-125%	---	---
Naphthalene	1.42	---	0.146	mg/kg dry	50	1.46	ND	97	62-129%	---	---
Toluene	1.31	---	0.0729	mg/kg dry	50	1.46	ND	90	77-121%	---	---
1,2,4-Trimethylbenzene	1.26	---	0.0729	mg/kg dry	50	1.46	ND	87	75-123%	---	---
1,3,5-Trimethylbenzene	1.29	---	0.0729	mg/kg dry	50	1.46	ND	88	73-124%	---	---
Xylenes, total	3.93	---	0.109	mg/kg dry	50	4.38	ND	90	78-124%	---	---
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 103 %		Limits: 80-120 %		Dilution: 1x					
Toluene-d8 (Surr)		99 %		80-120 %		"					

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GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810176 - 09 10 18 1721

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090520 - EPA 5035A							Soil					
Matrix Spike (8090520-MS1)			Prepared: 09/04/18 17:05 Analyzed: 09/07/18 14:51					V-15				
QC Source Sample: Non-SDG (A810033-05)												
Surr: 4-Bromofluorobenzene (Surr)				Recovery: 99 %		Limits: 80-120 %		Dilution: 1x				

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EPA ID: OR01039

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Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810176 - 09 10 18 1721****QUALITY CONTROL (QC) SAMPLE RESULTS****Total Metals by EPA 6020 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090546 - EPA 3051A						Soil						
Blank (8090546-BLK1)			Prepared: 09/07/18 15:21		Analyzed: 09/07/18 19:36							
EPA 6020A												
Lead	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (8090546-BS1)			Prepared: 09/07/18 15:21		Analyzed: 09/07/18 19:40							
EPA 6020A												
Lead	49.2	---	0.200	mg/kg wet	10	50.0	---	98	80-120%	---	---	
Duplicate (8090546-DUP1)			Prepared: 09/07/18 15:21		Analyzed: 09/07/18 19:58							
QC Source Sample: SS-10E(10) (A810176-03)												
EPA 6020A												
Lead	8.44	---	0.290	mg/kg dry	10	---	8.64	---	---	2	40%	
Matrix Spike (8090546-MS1)			Prepared: 09/07/18 15:21		Analyzed: 09/07/18 20:03							
QC Source Sample: SS-10E(10) (A810176-03)												
EPA 6020A												
Lead	78.2	---	0.306	mg/kg dry	10	76.6	8.64	91	75-125%	---	---	

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EPA ID: OR01039

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Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810176 - 09 10 18 1721****QUALITY CONTROL (QC) SAMPLE RESULTS****Percent Dry Weight**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090524 - Total Solids (Dry Weight)							Soil					
Duplicate (8090524-DUP1)			Prepared: 09/07/18 09:56 Analyzed: 09/10/18 08:12									
QC Source Sample: Non-SDG (A810097-01)												
% Solids	94.0	---	1.00	% by Weight	1	---	94.2	---	---	0.2	10%	
Duplicate (8090524-DUP2)			Prepared: 09/07/18 09:56 Analyzed: 09/10/18 08:12									
QC Source Sample: Non-SDG (A810126-06)												
% Solids	87.2	---	1.00	% by Weight	1	---	87.8	---	---	0.7	10%	
Duplicate (8090524-DUP3)			Prepared: 09/07/18 18:25 Analyzed: 09/10/18 08:12									
QC Source Sample: Non-SDG (A810184-02)												
% Solids	92.0	---	1.00	% by Weight	1	---	92.2	---	---	0.2	10%	
Duplicate (8090524-DUP4)			Prepared: 09/07/18 18:25 Analyzed: 09/10/18 08:12									
QC Source Sample: Non-SDG (A810189-02)												
% Solids	89.9	---	1.00	% by Weight	1	---	90.0	---	---	0.07	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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Project: **River Terrace East Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A810176 - 09 10 18 1721

SAMPLE PREPARATION INFORMATION**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8090520							
A810176-01	Soil	NWTPH-Gx (MS)	09/07/18 13:00	09/07/18 13:00	3.8g/5mL	5g/5mL	1.32
A810176-02	Soil	NWTPH-Gx (MS)	09/07/18 13:05	09/07/18 13:05	5.23g/5mL	5g/5mL	0.96
A810176-03	Soil	NWTPH-Gx (MS)	09/07/18 13:10	09/07/18 13:10	7.57g/5mL	5g/5mL	0.66

Selected Volatile Organic Compounds by EPA 5035A/8260C

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8090520							
A810176-01	Soil	5035A/8260C	09/07/18 13:00	09/07/18 13:00	3.8g/5mL	5g/5mL	1.32
A810176-02	Soil	5035A/8260C	09/07/18 13:05	09/07/18 13:05	5.23g/5mL	5g/5mL	0.96
A810176-03	Soil	5035A/8260C	09/07/18 13:10	09/07/18 13:10	7.57g/5mL	5g/5mL	0.66

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8090546							
A810176-01	Soil	EPA 6020A	09/07/18 13:00	09/07/18 15:21	0.468g/50mL	0.5g/50mL	1.07
A810176-02	Soil	EPA 6020A	09/07/18 13:05	09/07/18 15:21	0.461g/50mL	0.5g/50mL	1.08
A810176-03	Soil	EPA 6020A	09/07/18 13:10	09/07/18 15:21	0.498g/50mL	0.5g/50mL	1.00

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8090524							
A810176-01	Soil	EPA 8000C	09/07/18 13:00	09/07/18 18:25			NA
A810176-02	Soil	EPA 8000C	09/07/18 13:05	09/07/18 18:25			NA
A810176-03	Soil	EPA 8000C	09/07/18 13:10	09/07/18 18:25			NA

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Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810176 - 09 10 18 1721

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

V-15 Sample aliquot was subsampled from the sample container. The subsampled aliquot was preserved in the laboratory within 48 hours of sampling.

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A handwritten signature in black ink that reads "Philip Nerenberg".

Philip Nerenberg, Lab Director

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REPORTING NOTES AND CONVENTIONS:**Abbreviations:**

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.

The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).

-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.

-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

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Philip Nerenberg, Lab Director



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Project Manager: **Kyle Sattler**

Report ID:

A810176 - 09 10 18 1721

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

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Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810176 - 09 10 18 1721

LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
<u>All reported analytes are included in Apex Laboratories' current ORELAP scope.</u>					

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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Project: River Terrace East Area 10
Project Number: Polygon-145-07
Project Manager: Kyle Sattler

Report ID:
A810176 - 09 10 18 1721

APEX LABS COOLER RECEIPT FORM

Client: GeoDesign Element WO#: A810176

Project/Project #: River Terrace East Area 10 / # Polygon-145-07

Delivery info:

Date/Time Received: 9/11/18 @ 1425 By: ALIC

Delivered by: Apex ☐ Client ☒ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐

Cooler Inspection Inspected by: ALIC : 9/11/18 @ 1426

Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒

Signed/Dated by Client? Yes ☒ No ☐

Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	<u>2.2</u>						

Received on Ice? (Y/N)	<u>Y</u>						
------------------------	----------	--	--	--	--	--	--

Temp. Blanks? (Y/N)	<u>Y</u>						
---------------------	----------	--	--	--	--	--	--

Ice Type: (Gel/Real/Other)	<u>Real</u>						
----------------------------	-------------	--	--	--	--	--	--

Condition:	<u>melted</u>						
------------	---------------	--	--	--	--	--	--

Cooler out of temp? (Y/N) ☒ Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA ☒

Samples Inspection: Inspected by: TG : 9/11/18 @ 1435

All Samples Intact? Yes ☒ No ☐ Comments:

Bottle Labels/COCs agree? Yes ☐ No ☒ Comments: SS-10W(10) jar reads ^{TG} 1426
and 1/2 vials read SS-10E(10) matched by T

Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments:

Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments:

Water Samples: pH Checked and Appropriate (except VOAs): Yes ☐ No ☐ NA ☒

Comments:

Additional Information:

Labeled by: TG Witness: AM Cooler Inspected by: TG See Project Contact Form: Y

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Philip Nerenberg

Philip Nerenberg, Lab Director



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EPA ID: OR01039

Friday, September 14, 2018

Kyle Sattler
GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

RE: A8I0107 - River Terrace East Area 10 - Polygon-145-07

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A8I0107, which was received by the laboratory on 9/6/2018 at 11:13:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



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A handwritten signature in black ink that reads "Philip Nerenberg".

Philip Nerenberg, Lab Director

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Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8I0107 - 09 14 18 0950

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SP-1	A8I0107-01	Soil	09/06/18 10:45	09/06/18 11:13

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Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810107 - 09 14 18 0950

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SP-1 (A810107-01)				Matrix: Soil		Batch: 8090475		
Gasoline Range Organics	9.22	---	8.02	mg/kg dry	50	09/06/18	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery:</i>	<i>103 %</i>	<i>Limits:</i>	<i>50-150 %</i>	<i>1</i>	<i>09/06/18</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>95 %</i>		<i>50-150 %</i>	<i>1</i>	<i>09/06/18</i>	<i>NWTPH-Gx (MS)</i>

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503-718-2323
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GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810107 - 09 14 18 0950****ANALYTICAL SAMPLE RESULTS****Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SP-1 (A810107-01)		Matrix: Soil			Batch: 8090475			
Benzene	ND	---	0.0160	mg/kg dry	50	09/06/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0802	mg/kg dry	50	09/06/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0401	mg/kg dry	50	09/06/18	5035A/8260C	
Ethylbenzene	ND	---	0.0401	mg/kg dry	50	09/06/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0802	mg/kg dry	50	09/06/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0802	mg/kg dry	50	09/06/18	5035A/8260C	
Naphthalene	ND	---	0.160	mg/kg dry	50	09/06/18	5035A/8260C	
Toluene	ND	---	0.0802	mg/kg dry	50	09/06/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0802	mg/kg dry	50	09/06/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0802	mg/kg dry	50	09/06/18	5035A/8260C	
Xylenes, total	ND	---	0.120	mg/kg dry	50	09/06/18	5035A/8260C	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	<i>102 %</i>	<i>Limits:</i>	<i>80-120 %</i>	<i>1</i>	<i>09/06/18</i>	<i>5035A/8260C</i>
<i>Toluene-d8 (Surr)</i>			<i>99 %</i>		<i>80-120 %</i>	<i>1</i>	<i>09/06/18</i>	<i>5035A/8260C</i>
<i>4-Bromofluorobenzene (Surr)</i>			<i>100 %</i>		<i>80-120 %</i>	<i>1</i>	<i>09/06/18</i>	<i>5035A/8260C</i>

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810107 - 09 14 18 0950

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SP-1 (A8I0107-01)				Matrix: Soil				
Batch: 8090600								
Lead	8.50	---	0.278	mg/kg dry	10	09/11/18	EPA 6020A	

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ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SP-1 (A810107-01)				Matrix: Soil		Batch: 8090524		
% Solids	70.3	---	1.00	% by Weight	1	09/10/18	EPA 8000C	

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Report ID:
A810107 - 09 14 18 0950

QUALITY CONTROL (QC) SAMPLE RESULTS**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090475 - EPA 5035A						Soil						
Blank (8090475-BLK1)			Prepared: 09/06/18 08:30 Analyzed: 09/06/18 11:28									
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 99 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		93 %		50-150 %		"						
LCS (8090475-BS2)			Prepared: 09/06/18 08:30 Analyzed: 09/06/18 11:01									
NWTPH-Gx (MS)												
Gasoline Range Organics	24.2	---	5.00	mg/kg wet	50	25.0	---	97	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 99 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		96 %		50-150 %		"						
Duplicate (8090475-DUP1)			Prepared: 09/04/18 13:50 Analyzed: 09/06/18 14:36									
QC Source Sample: Non-SDG (A810085-09)												
Gasoline Range Organics	ND	---	5.75	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 102 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		94 %		50-150 %		"						

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EPA ID: OR01039

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Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810107 - 09 14 18 0950****QUALITY CONTROL (QC) SAMPLE RESULTS****Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090475 - EPA 5035A						Soil						
Blank (8090475-BLK1)			Prepared: 09/06/18 08:30 Analyzed: 09/06/18 11:28									
5035A/8260C												
Benzene	ND	---	0.00667	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Xylenes, total	ND	---	0.0500	mg/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery:		102 %	Limits: 80-120 %		Dilution: 1x					
Toluene-d8 (Surr)				100 %	80-120 %		"					
4-Bromofluorobenzene (Surr)				97 %	80-120 %		"					
LCS (8090475-BS1)			Prepared: 09/06/18 08:30 Analyzed: 09/06/18 10:34									
5035A/8260C												
Benzene	0.993	---	0.0100	mg/kg wet	50	1.00	---	99	80-120%	---	---	
1,2-Dibromoethane (EDB)	0.950	---	0.0500	mg/kg wet	50	1.00	---	95	80-120%	---	---	
1,2-Dichloroethane (EDC)	0.912	---	0.0250	mg/kg wet	50	1.00	---	91	80-120%	---	---	
Ethylbenzene	0.939	---	0.0250	mg/kg wet	50	1.00	---	94	80-120%	---	---	
Isopropylbenzene	0.956	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	0.902	---	0.0500	mg/kg wet	50	1.00	---	90	80-120%	---	---	
Naphthalene	1.00	---	0.100	mg/kg wet	50	1.00	---	100	80-120%	---	---	
Toluene	0.924	---	0.0500	mg/kg wet	50	1.00	---	92	80-120%	---	---	
1,2,4-Trimethylbenzene	0.878	---	0.0500	mg/kg wet	50	1.00	---	88	80-120%	---	---	
1,3,5-Trimethylbenzene	0.892	---	0.0500	mg/kg wet	50	1.00	---	89	80-120%	---	---	
Xylenes, total	2.75	---	0.0750	mg/kg wet	50	3.00	---	92	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery:		102 %	Limits: 80-120 %		Dilution: 1x					
Toluene-d8 (Surr)				101 %	80-120 %		"					
4-Bromofluorobenzene (Surr)				97 %	80-120 %		"					

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810107 - 09 14 18 0950****QUALITY CONTROL (QC) SAMPLE RESULTS****Selected Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090475 - EPA 5035A						Soil						
Duplicate (8090475-DUP1)			Prepared: 09/04/18 13:50 Analyzed: 09/06/18 14:36									
QC Source Sample: Non-SDG (A810085-09)												
Benzene	ND	---	0.0115	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	0.0575	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	0.0287	mg/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	0.0287	mg/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	0.0575	mg/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	0.0575	mg/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	---	0.115	mg/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	---	0.0575	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	0.0575	mg/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	0.0575	mg/kg dry	50	---	ND	---	---	---	30%	
Xylenes, total	ND	---	0.0862	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 102 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		99 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		97 %		80-120 %		"						

Matrix Spike (8090475-MS1)

Prepared: 09/04/18 13:50 Analyzed: 09/06/18 15:03

QC Source Sample: Non-SDG (A810085-09)**5035A/8260C**

Benzene	1.08	---	0.0105	mg/kg dry	50	1.05	ND	103	77-121%	---	---	
1,2-Dibromoethane (EDB)	1.05	---	0.0527	mg/kg dry	50	1.05	ND	99	78-122%	---	---	
1,2-Dichloroethane (EDC)	1.02	---	0.0263	mg/kg dry	50	1.05	ND	97	73-128%	---	---	
Ethylbenzene	0.992	---	0.0263	mg/kg dry	50	1.05	ND	94	76-122%	---	---	
Isopropylbenzene	1.00	---	0.0527	mg/kg dry	50	1.05	ND	95	68-134%	---	---	
Methyl tert-butyl ether (MTBE)	0.969	---	0.0527	mg/kg dry	50	1.05	ND	92	73-125%	---	---	
Naphthalene	1.04	---	0.105	mg/kg dry	50	1.05	ND	99	62-129%	---	---	
Toluene	0.978	---	0.0527	mg/kg dry	50	1.05	ND	93	77-121%	---	---	
1,2,4-Trimethylbenzene	0.930	---	0.0527	mg/kg dry	50	1.05	ND	88	75-123%	---	---	
1,3,5-Trimethylbenzene	0.939	---	0.0527	mg/kg dry	50	1.05	ND	89	73-124%	---	---	
Xylenes, total	2.90	---	0.0790	mg/kg dry	50	3.16	ND	92	78-124%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr) Recovery: 103 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr) 99 % 80-120 % "</i>												

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Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810107 - 09 14 18 0950

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090475 - EPA 5035A							Soil					
Matrix Spike (8090475-MS1)			Prepared: 09/04/18 13:50 Analyzed: 09/06/18 15:03									
QC Source Sample: Non-SDG (A8I0085-09)												
Surr: 4-Bromofluorobenzene (Surr)				Recovery: 98 %		Limits: 80-120 %		Dilution: 1x				

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QUALITY CONTROL (QC) SAMPLE RESULTS**Total Metals by EPA 6020 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090600 - EPA 3051A						Soil						
Blank (8090600-BLK1)			Prepared: 09/11/18 09:37 Analyzed: 09/11/18 19:26									
EPA 6020A												
Lead	ND	---	0.192	mg/kg wet	10	---	---	---	---	---	---	
LCS (8090600-BS1)			Prepared: 09/11/18 09:37 Analyzed: 09/11/18 19:31									
EPA 6020A												
Lead	48.6	---	0.200	mg/kg wet	10	50.0	---	97	80-120%	---	---	
Duplicate (8090600-DUP1)			Prepared: 09/11/18 09:37 Analyzed: 09/11/18 19:44									
QC Source Sample: SP-1 (A810107-01)												
EPA 6020A												
Lead	9.08	---	0.282	mg/kg dry	10	---	8.50	---	---	7	40%	
Matrix Spike (8090600-MS1)			Prepared: 09/11/18 09:37 Analyzed: 09/11/18 19:49									
QC Source Sample: SP-1 (A810107-01)												
EPA 6020A												
Lead	72.3	---	0.286	mg/kg dry	10	71.4	8.50	89	75-125%	---	---	

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Project: **River Terrace East Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810107 - 09 14 18 0950****QUALITY CONTROL (QC) SAMPLE RESULTS****Percent Dry Weight**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8090524 - Total Solids (Dry Weight)							Soil					
Duplicate (8090524-DUP1)			Prepared: 09/07/18 09:56 Analyzed: 09/10/18 08:12									
QC Source Sample: Non-SDG (A810097-01)												
% Solids	94.0	---	1.00	% by Weight	1	---	94.2	---	---	0.2	10%	
Duplicate (8090524-DUP2)			Prepared: 09/07/18 09:56 Analyzed: 09/10/18 08:12									
QC Source Sample: Non-SDG (A810126-06)												
% Solids	87.2	---	1.00	% by Weight	1	---	87.8	---	---	0.7	10%	
Duplicate (8090524-DUP3)			Prepared: 09/07/18 18:25 Analyzed: 09/10/18 08:12									
QC Source Sample: Non-SDG (A810184-02)												
% Solids	92.0	---	1.00	% by Weight	1	---	92.2	---	---	0.2	10%	
Duplicate (8090524-DUP4)			Prepared: 09/07/18 18:25 Analyzed: 09/10/18 08:12									
QC Source Sample: Non-SDG (A810189-02)												
% Solids	89.9	---	1.00	% by Weight	1	---	90.0	---	---	0.07	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8I0107 - 09 14 18 0950

SAMPLE PREPARATION INFORMATION**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx****Prep: EPA 5035A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8090475</u>							
A8I0107-01	Soil	NWTPH-Gx (MS)	09/06/18 10:45	09/06/18 10:45	6.02g/5mL	5g/5mL	0.83

Selected Volatile Organic Compounds by EPA 5035A/8260C**Prep: EPA 5035A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8090475</u>							
A8I0107-01	Soil	5035A/8260C	09/06/18 10:45	09/06/18 10:45	6.02g/5mL	5g/5mL	0.83

Total Metals by EPA 6020 (ICPMS)**Prep: EPA 3051A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8090600</u>							
A8I0107-01	Soil	EPA 6020A	09/06/18 10:45	09/11/18 09:37	0.511g/50mL	0.5g/50mL	0.98

Percent Dry Weight**Prep: Total Solids (Dry Weight)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8090524</u>							
A8I0107-01	Soil	EPA 8000C	09/06/18 10:45	09/07/18 09:56			NA

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Report ID:

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QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

There are No Qualifiers on Sample or QC Data for this report

Apex Laboratories

A handwritten signature in black ink that reads "Philip Nerenberg".

Philip Nerenberg, Lab Director

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REPORTING NOTES AND CONVENTIONS:**Abbreviations:**

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.

The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).

-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.

-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories

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Philip Nerenberg, Lab Director



Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace East Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810107 - 09 14 18 0950

LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
<u>All reported analytes are included in Apex Laboratories' current ORELAP scope.</u>					

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Philip Nerenberg, Lab Director

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Wilsonville, OR 97070

Project: River Terrace East Area 10
Project Number: Polygon-145-07
Project Manager: Kyle Sattler

Report ID:
A810107 - 09 14 18 0950

APEX LABS COOLER RECEIPT FORM

Client: GeoDesign Element WO#: A810107

Project/Project #: River Terrace East Area 10 / Polygon-145-07

Delivery info:

Date/Time Received: 9/16/18 @ 1113 By: [Signature]

Delivered by: Apex ☒ Client ☒ ESS ☒ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐

Cooler Inspection Inspected by: [Signature] : 9/16/18 @ 1113

Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒

Signed/Dated by Client? Yes ☒ No ☐

Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
--	-----------	-----------	-----------	-----------	-----------	-----------	-----------

Temperature (deg. C)	<u>5.0</u>						
----------------------	------------	--	--	--	--	--	--

Received on Ice? (Y/N)	<u>(Y)</u>						
------------------------	------------	--	--	--	--	--	--

Temp. Blanks? (Y/N)	<u>(N)</u>						
---------------------	------------	--	--	--	--	--	--

Ice Type: (Gel/Real/Other)	<u>(Gel)</u>						
----------------------------	--------------	--	--	--	--	--	--

Condition:	<u>good</u>						
------------	-------------	--	--	--	--	--	--

Cooler out of temp? (Y/N) (N) Possible reason why: _____

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No (NA)

Samples Inspection: Inspected by: [Signature] : 9/16/18 @ 1115

All Samples Intact? Yes ☒ No ☐ Comments: _____

Bottle Labels/COCs agree? Yes ☒ No ☐ Comments: _____

Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments: _____

Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments: _____

Water Samples: pH Checked and Appropriate (except VOAs): Yes ☐ No ☐ NA ☒

Comments: _____

Additional Information: _____

Labeled by: [Signature] Witness: [Signature] Cooler Inspected by: [Signature] See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC

12232 S.W. Garden Place
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503-718-2323
EPA ID: OR01039

Tuesday, October 2, 2018

Kyle Sattler
GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

RE: A810814 - River Terrace Area 10 - Polygon-145-07

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A810814, which was received by the laboratory on 9/27/2018 at 3:55:00PM.

Cooler Temperatures:
Default Cooler 2.9 degC

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

A handwritten signature in black ink that reads "Philip Nerenberg".

Philip Nerenberg, Lab Director

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GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8I0814 - 10 02 18 1251

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SP-2	A8I0814-01	Soil	09/27/18 10:10	09/27/18 15:55

Apex Laboratories

Philip Nerenberg, Lab Director

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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A810814 - 10 02 18 1251

ANALYTICAL SAMPLE RESULTS**Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SP-2 (A810814-01)				Matrix: Soil		Batch: 8091247		
Acetone	ND	---	14.5	mg/kg dry	500	09/28/18	5035A/8260C	
Acrylonitrile	ND	---	1.45	mg/kg dry	500	09/28/18	5035A/8260C	
Benzene	0.199	---	0.145	mg/kg dry	500	09/28/18	5035A/8260C	
Bromobenzene	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
Bromochloromethane	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
Bromodichloromethane	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
Bromoform	ND	---	1.45	mg/kg dry	500	09/28/18	5035A/8260C	
Bromomethane	ND	---	7.25	mg/kg dry	500	09/28/18	5035A/8260C	
2-Butanone (MEK)	ND	---	7.25	mg/kg dry	500	09/28/18	5035A/8260C	
n-Butylbenzene	2.50	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	M-02
sec-Butylbenzene	0.880	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
Carbon disulfide	ND	---	7.25	mg/kg dry	500	09/28/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
Chlorobenzene	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
Chloroethane	ND	---	7.25	mg/kg dry	500	09/28/18	5035A/8260C	
Chloroform	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
Chloromethane	ND	---	3.62	mg/kg dry	500	09/28/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
Dibromochloromethane	ND	---	1.45	mg/kg dry	500	09/28/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	3.62	mg/kg dry	500	09/28/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
Dibromomethane	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	1.45	mg/kg dry	500	09/28/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	

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Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****ANALYTICAL SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SP-2 (A810814-01)				Matrix: Soil		Batch: 8091247		
1,2-Dichloropropane	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
Ethylbenzene	15.0	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
Hexachlorobutadiene	ND	---	1.45	mg/kg dry	500	09/28/18	5035A/8260C	
2-Hexanone	ND	---	7.25	mg/kg dry	500	09/28/18	5035A/8260C	
Isopropylbenzene	1.63	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
Methylene chloride	ND	---	3.62	mg/kg dry	500	09/28/18	5035A/8260C	
4-Methyl-2-pentanone (MIBK)	ND	---	7.25	mg/kg dry	500	09/28/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
Naphthalene	12.7	---	1.45	mg/kg dry	500	09/28/18	5035A/8260C	
n-Propylbenzene	7.70	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
Styrene	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
Tetrachloroethene (PCE)	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
Toluene	14.2	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	3.62	mg/kg dry	500	09/28/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	3.62	mg/kg dry	500	09/28/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
Trichlorofluoromethane	ND	---	1.45	mg/kg dry	500	09/28/18	5035A/8260C	
1,2,3-Trichloropropane	ND	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
1,2,4-Trimethylbenzene	66.2	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
1,3,5-Trimethylbenzene	19.9	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
Vinyl chloride	ND	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	
m,p-Xylene	78.1	---	0.725	mg/kg dry	500	09/28/18	5035A/8260C	
o-Xylene	30.3	---	0.362	mg/kg dry	500	09/28/18	5035A/8260C	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810814 - 10 02 18 1251

ANALYTICAL SAMPLE RESULTS**Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SP-2 (A810814-01)				Matrix: Soil		Batch: 8091247		
Surrogate: 1,4-Difluorobenzene (Surr)		Recovery:	99 %	Limits:	80-120 %	1	09/28/18	5035A/8260C
Toluene-d8 (Surr)			99 %		80-120 %	1	09/28/18	5035A/8260C
4-Bromofluorobenzene (Surr)			100 %		80-120 %	1	09/28/18	5035A/8260C

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EPA ID: OR01039

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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****ANALYTICAL SAMPLE RESULTS****Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SP-2 (A810814-01)				Matrix: Soil		Batch: 8091281		
Acenaphthene	ND	---	0.0219	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	R-02
Acenaphthylene	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Anthracene	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benz(a)anthracene	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(a)pyrene	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(b)fluoranthene	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(k)fluoranthene	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(g,h,i)perylene	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Chrysene	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Dibenz(a,h)anthracene	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Dibenzofuran	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Fluoranthene	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Fluorene	0.0301	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Indeno(1,2,3-cd)pyrene	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
1-Methylnaphthalene	2.75	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Naphthalene	4.80	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Phenanthrene	0.0459	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Pyrene	ND	---	0.0129	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
<i>Surrogate: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery: 69 %</i>		<i>Limits: 44-120 %</i>	<i>1</i>	<i>10/01/18</i>	<i>EPA 8270D (SIM)</i>	
<i>p-Terphenyl-d14 (Surr)</i>		<i>78 %</i>		<i>54-127 %</i>	<i>1</i>	<i>10/01/18</i>	<i>EPA 8270D (SIM)</i>	

SP-2 (A810814-01RE1)				Matrix: Soil		Batch: 8091281		
2-Methylnaphthalene	7.30	---	0.129	mg/kg dry	10	10/01/18	EPA 8270D (SIM)	

Apex Laboratories

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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810814 - 10 02 18 1251

ANALYTICAL SAMPLE RESULTS**Total Metals by EPA 6020 (ICPMS)**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SP-2 (A8I0814-01)				Matrix: Soil				
Batch: 8091279								
Cadmium	0.889	---	0.280	mg/kg dry	10	09/28/18	EPA 6020A	
Chromium	31.5	---	1.40	mg/kg dry	10	09/28/18	EPA 6020A	

Apex Laboratories

Philip Nerenberg, Lab Director

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Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810814 - 10 02 18 1251

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SP-2 (A810814-01)				Matrix: Soil		Batch: 8091262		
% Solids	76.4	---	1.00	% by Weight	1	10/01/18	EPA 8000C	

Apex Laboratories

Philip Nerenberg, Lab Director

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GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091247 - EPA 5035A						Soil						
Blank (8091247-BLK1)			Prepared: 09/28/18 08:30 Analyzed: 09/28/18 10:33									
5035A/8260C												
Acetone	ND	---	0.667	mg/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
Benzene	ND	---	0.00667	mg/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	

Apex Laboratories

Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091247 - EPA 5035A						Soil						
Blank (8091247-BLK1)			Prepared: 09/28/18 08:30		Analyzed: 09/28/18 10:33							
1,2-Dichloropropane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Styrene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

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Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091247 - EPA 5035A						Soil						
Blank (8091247-BLK1)			Prepared: 09/28/18 08:30		Analyzed: 09/28/18 10:33							
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 97 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		98 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		105 %		80-120 %		"						
LCS (8091247-BS1)			Prepared: 09/28/18 08:30		Analyzed: 09/28/18 09:39							
5035A/8260C												
Acetone	2.05	---	1.00	mg/kg wet	50	2.00	---	103	80-120%	---	---	
Acrylonitrile	1.01	---	0.100	mg/kg wet	50	1.00	---	101	80-120%	---	---	
Benzene	0.939	---	0.0100	mg/kg wet	50	1.00	---	94	80-120%	---	---	
Bromobenzene	0.988	---	0.0250	mg/kg wet	50	1.00	---	99	80-120%	---	---	
Bromochloromethane	1.14	---	0.0500	mg/kg wet	50	1.00	---	114	80-120%	---	---	
Bromodichloromethane	0.916	---	0.0500	mg/kg wet	50	1.00	---	92	80-120%	---	---	
Bromoform	1.11	---	0.100	mg/kg wet	50	1.00	---	111	80-120%	---	---	
Bromomethane	1.04	---	0.500	mg/kg wet	50	1.00	---	104	80-120%	---	---	
2-Butanone (MEK)	2.21	---	0.500	mg/kg wet	50	2.00	---	110	80-120%	---	---	
n-Butylbenzene	0.896	---	0.0500	mg/kg wet	50	1.00	---	90	80-120%	---	---	
sec-Butylbenzene	0.925	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
tert-Butylbenzene	0.947	---	0.0500	mg/kg wet	50	1.00	---	95	80-120%	---	---	
Carbon disulfide	0.901	---	0.500	mg/kg wet	50	1.00	---	90	80-120%	---	---	
Carbon tetrachloride	0.986	---	0.0500	mg/kg wet	50	1.00	---	99	80-120%	---	---	
Chlorobenzene	0.948	---	0.0250	mg/kg wet	50	1.00	---	95	80-120%	---	---	
Chloroethane	1.13	---	0.500	mg/kg wet	50	1.00	---	113	80-120%	---	---	
Chloroform	0.972	---	0.0500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
Chloromethane	0.941	---	0.250	mg/kg wet	50	1.00	---	94	80-120%	---	---	
2-Chlorotoluene	0.934	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
4-Chlorotoluene	0.921	---	0.0500	mg/kg wet	50	1.00	---	92	80-120%	---	---	
Dibromochloromethane	0.955	---	0.100	mg/kg wet	50	1.00	---	96	80-120%	---	---	
1,2-Dibromo-3-chloropropane	0.949	---	0.250	mg/kg wet	50	1.00	---	95	80-120%	---	---	
1,2-Dibromoethane (EDB)	1.03	---	0.0500	mg/kg wet	50	1.00	---	103	80-120%	---	---	
Dibromomethane	0.947	---	0.0500	mg/kg wet	50	1.00	---	95	80-120%	---	---	
1,2-Dichlorobenzene	0.980	---	0.0250	mg/kg wet	50	1.00	---	98	80-120%	---	---	
1,3-Dichlorobenzene	0.956	---	0.0250	mg/kg wet	50	1.00	---	96	80-120%	---	---	
1,4-Dichlorobenzene	0.934	---	0.0250	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Dichlorodifluoromethane	0.882	---	0.100	mg/kg wet	50	1.00	---	88	80-120%	---	---	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

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Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091247 - EPA 5035A						Soil						
LCS (8091247-BS1)			Prepared: 09/28/18 08:30		Analyzed: 09/28/18 09:39							
1,1-Dichloroethane	0.999	---	0.0250	mg/kg wet	50	1.00	---	100	80-120%	---	---	
1,2-Dichloroethane (EDC)	1.06	---	0.0250	mg/kg wet	50	1.00	---	106	80-120%	---	---	
1,1-Dichloroethene	1.00	---	0.0250	mg/kg wet	50	1.00	---	100	80-120%	---	---	
cis-1,2-Dichloroethene	1.00	---	0.0250	mg/kg wet	50	1.00	---	100	80-120%	---	---	
trans-1,2-Dichloroethene	1.02	---	0.0250	mg/kg wet	50	1.00	---	102	80-120%	---	---	
1,2-Dichloropropane	0.983	---	0.0250	mg/kg wet	50	1.00	---	98	80-120%	---	---	
1,3-Dichloropropane	1.00	---	0.0500	mg/kg wet	50	1.00	---	100	80-120%	---	---	
2,2-Dichloropropane	1.19	---	0.0500	mg/kg wet	50	1.00	---	119	80-120%	---	---	
1,1-Dichloropropene	0.953	---	0.0500	mg/kg wet	50	1.00	---	95	80-120%	---	---	
cis-1,3-Dichloropropene	0.931	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
trans-1,3-Dichloropropene	1.05	---	0.0500	mg/kg wet	50	1.00	---	105	80-120%	---	---	
Ethylbenzene	0.944	---	0.0250	mg/kg wet	50	1.00	---	94	80-120%	---	---	
Hexachlorobutadiene	0.996	---	0.100	mg/kg wet	50	1.00	---	100	80-120%	---	---	
2-Hexanone	2.32	---	0.500	mg/kg wet	50	2.00	---	116	80-120%	---	---	
Isopropylbenzene	0.997	---	0.0500	mg/kg wet	50	1.00	---	100	80-120%	---	---	
4-Isopropyltoluene	0.934	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Methylene chloride	0.879	---	0.250	mg/kg wet	50	1.00	---	88	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	2.49	---	0.500	mg/kg wet	50	2.00	---	125	80-120%	---	---	Q-56
Methyl tert-butyl ether (MTBE)	0.976	---	0.0500	mg/kg wet	50	1.00	---	98	80-120%	---	---	
Naphthalene	0.990	---	0.100	mg/kg wet	50	1.00	---	99	80-120%	---	---	
n-Propylbenzene	0.913	---	0.0250	mg/kg wet	50	1.00	---	91	80-120%	---	---	
Styrene	0.998	---	0.0500	mg/kg wet	50	1.00	---	100	80-120%	---	---	
1,1,1,2-Tetrachloroethane	0.984	---	0.0250	mg/kg wet	50	1.00	---	98	80-120%	---	---	
1,1,2,2-Tetrachloroethane	1.02	---	0.0500	mg/kg wet	50	1.00	---	102	80-120%	---	---	
Tetrachloroethene (PCE)	1.05	---	0.0250	mg/kg wet	50	1.00	---	105	80-120%	---	---	
Toluene	0.956	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
1,2,3-Trichlorobenzene	1.03	---	0.250	mg/kg wet	50	1.00	---	103	80-120%	---	---	
1,2,4-Trichlorobenzene	1.04	---	0.250	mg/kg wet	50	1.00	---	104	80-120%	---	---	
1,1,1-Trichloroethane	0.967	---	0.0250	mg/kg wet	50	1.00	---	97	80-120%	---	---	
1,1,2-Trichloroethane	0.991	---	0.0250	mg/kg wet	50	1.00	---	99	80-120%	---	---	
Trichloroethene (TCE)	0.940	---	0.0250	mg/kg wet	50	1.00	---	94	80-120%	---	---	
Trichlorofluoromethane	1.21	---	0.100	mg/kg wet	50	1.00	---	121	80-120%	---	---	Q-56
1,2,3-Trichloropropane	0.969	---	0.0500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
1,2,4-Trimethylbenzene	0.936	---	0.0500	mg/kg wet	50	1.00	---	94	80-120%	---	---	

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Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091247 - EPA 5035A						Soil						
LCS (8091247-BS1)			Prepared: 09/28/18 08:30		Analyzed: 09/28/18 09:39							
1,3,5-Trimethylbenzene	0.931	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Vinyl chloride	1.05	---	0.0250	mg/kg wet	50	1.00	---	105	80-120%	---	---	
m,p-Xylene	1.89	---	0.0500	mg/kg wet	50	2.00	---	95	80-120%	---	---	
o-Xylene	0.949	---	0.0250	mg/kg wet	50	1.00	---	95	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 95 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		98 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		101 %		80-120 %		"						

Duplicate (8091247-DUP1)

Prepared: 09/27/18 10:10 Analyzed: 09/28/18 13:16

QC Source Sample: Non-SDG (A810768-01)

Acetone	ND	---	1.16	mg/kg dry	50	---	ND	---	---	---	30%
Acrylonitrile	ND	---	0.116	mg/kg dry	50	---	ND	---	---	---	30%
Benzene	ND	---	0.0116	mg/kg dry	50	---	ND	---	---	---	30%
Bromobenzene	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%
Bromochloromethane	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%
Bromodichloromethane	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%
Bromoform	ND	---	0.116	mg/kg dry	50	---	ND	---	---	---	30%
Bromomethane	ND	---	0.581	mg/kg dry	50	---	ND	---	---	---	30%
2-Butanone (MEK)	ND	---	0.581	mg/kg dry	50	---	ND	---	---	---	30%
n-Butylbenzene	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%
sec-Butylbenzene	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%
tert-Butylbenzene	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%
Carbon disulfide	ND	---	0.581	mg/kg dry	50	---	ND	---	---	---	30%
Carbon tetrachloride	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%
Chlorobenzene	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%
Chloroethane	ND	---	0.581	mg/kg dry	50	---	ND	---	---	---	30%
Chloroform	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%
Chloromethane	ND	---	0.291	mg/kg dry	50	---	ND	---	---	---	30%
2-Chlorotoluene	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%
4-Chlorotoluene	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%
Dibromochloromethane	ND	---	0.116	mg/kg dry	50	---	ND	---	---	---	30%
1,2-Dibromo-3-chloropropane	ND	---	0.291	mg/kg dry	50	---	ND	---	---	---	30%
1,2-Dibromoethane (EDB)	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%
Dibromomethane	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%

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Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091247 - EPA 5035A						Soil						
Duplicate (8091247-DUP1)			Prepared: 09/27/18 10:10		Analyzed: 09/28/18 13:16							
QC Source Sample: Non-SDG (A810768-01)												
1,2-Dichlorobenzene	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	Q-05
1,3-Dichlorobenzene	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	0.116	mg/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	0.0291	mg/kg dry	50	---	0.0204	---	---	***	30%	
Hexachlorobutadiene	ND	---	0.116	mg/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	---	0.581	mg/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%	
Methylene chloride	ND	---	0.291	mg/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	0.581	mg/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	---	0.116	mg/kg dry	50	---	ND	---	---	---	30%	
n-Propylbenzene	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
Styrene	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	---	0.0581	mg/kg dry	50	---	0.0792	---	---	***	30%	
1,2,3-Trichlorobenzene	ND	---	0.291	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	---	0.291	mg/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091247 - EPA 5035A						Soil						
Duplicate (8091247-DUP1)			Prepared: 09/27/18 10:10		Analyzed: 09/28/18 13:16							
QC Source Sample: Non-SDG (A810768-01)												
1,1,1-Trichloroethane	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	---	0.116	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	0.0581	mg/kg dry	50	---	0.0421	---	---	***	30%	Q-05
1,3,5-Trimethylbenzene	ND	---	0.0581	mg/kg dry	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	---	0.0291	mg/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	ND	---	0.0581	mg/kg dry	50	---	0.0820	---	---	***	30%	Q-05
o-Xylene	ND	---	0.0291	mg/kg dry	50	---	0.0302	---	---	***	30%	Q-05
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 97 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		99 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		104 %		80-120 %		"						

Matrix Spike (8091247-MS1)

Prepared: 09/27/18 10:21 Analyzed: 09/28/18 14:10

QC Source Sample: Non-SDG (A810768-02)**5035A/8260C**

Acetone	2.58	---	1.14	mg/kg dry	50	2.27	ND	114	36-164%	---	---	
Acrylonitrile	1.24	---	0.114	mg/kg dry	50	1.14	ND	109	65-134%	---	---	
Benzene	1.09	---	0.0114	mg/kg dry	50	1.14	ND	96	77-121%	---	---	
Bromobenzene	1.11	---	0.0284	mg/kg dry	50	1.14	ND	98	78-121%	---	---	
Bromochloromethane	1.42	---	0.0568	mg/kg dry	50	1.14	ND	125	78-125%	---	---	
Bromodichloromethane	1.08	---	0.0568	mg/kg dry	50	1.14	ND	95	75-127%	---	---	
Bromoform	1.28	---	0.114	mg/kg dry	50	1.14	ND	112	67-132%	---	---	
Bromomethane	1.33	---	0.568	mg/kg dry	50	1.14	ND	117	53-143%	---	---	
2-Butanone (MEK)	2.67	---	0.568	mg/kg dry	50	2.27	ND	118	51-148%	---	---	
n-Butylbenzene	0.998	---	0.0568	mg/kg dry	50	1.14	ND	88	70-128%	---	---	
sec-Butylbenzene	1.05	---	0.0568	mg/kg dry	50	1.14	ND	93	73-126%	---	---	
tert-Butylbenzene	1.08	---	0.0568	mg/kg dry	50	1.14	ND	95	73-125%	---	---	
Carbon disulfide	1.08	---	0.568	mg/kg dry	50	1.14	ND	95	63-132%	---	---	
Carbon tetrachloride	1.18	---	0.0568	mg/kg dry	50	1.14	ND	104	70-135%	---	---	
Chlorobenzene	1.08	---	0.0284	mg/kg dry	50	1.14	ND	95	79-120%	---	---	
Chloroethane	1.63	---	0.568	mg/kg dry	50	1.14	ND	144	59-139%	---	---	Q-01

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**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091247 - EPA 5035A						Soil						
Matrix Spike (8091247-MS1)			Prepared: 09/27/18 10:21		Analyzed: 09/28/18 14:10							
QC Source Sample: Non-SDG (A810768-02)												
Chloroform	1.16	---	0.0568	mg/kg dry	50	1.14	ND	102	78-123%	---	---	
Chloromethane	1.11	---	0.284	mg/kg dry	50	1.14	ND	98	50-136%	---	---	
2-Chlorotoluene	1.06	---	0.0568	mg/kg dry	50	1.14	ND	93	75-122%	---	---	
4-Chlorotoluene	1.04	---	0.0568	mg/kg dry	50	1.14	ND	92	72-124%	---	---	
Dibromochloromethane	1.07	---	0.114	mg/kg dry	50	1.14	ND	94	74-126%	---	---	
1,2-Dibromo-3-chloropropane	1.03	---	0.284	mg/kg dry	50	1.14	ND	91	61-132%	---	---	
1,2-Dibromoethane (EDB)	1.14	---	0.0568	mg/kg dry	50	1.14	ND	101	78-122%	---	---	
Dibromomethane	1.14	---	0.0568	mg/kg dry	50	1.14	ND	101	78-125%	---	---	
1,2-Dichlorobenzene	1.12	---	0.0284	mg/kg dry	50	1.14	ND	98	78-121%	---	---	
1,3-Dichlorobenzene	1.10	---	0.0284	mg/kg dry	50	1.14	ND	96	77-121%	---	---	
1,4-Dichlorobenzene	1.06	---	0.0284	mg/kg dry	50	1.14	ND	93	75-120%	---	---	
Dichlorodifluoromethane	1.12	---	0.114	mg/kg dry	50	1.14	ND	98	29-149%	---	---	
1,1-Dichloroethane	1.17	---	0.0284	mg/kg dry	50	1.14	ND	103	76-125%	---	---	
1,2-Dichloroethane (EDC)	1.29	---	0.0284	mg/kg dry	50	1.14	ND	113	73-128%	---	---	
1,1-Dichloroethene	1.24	---	0.0284	mg/kg dry	50	1.14	ND	109	70-131%	---	---	
cis-1,2-Dichloroethene	1.19	---	0.0284	mg/kg dry	50	1.14	ND	105	77-123%	---	---	
trans-1,2-Dichloroethene	1.21	---	0.0284	mg/kg dry	50	1.14	ND	106	74-125%	---	---	
1,2-Dichloropropane	1.15	---	0.0284	mg/kg dry	50	1.14	ND	101	76-123%	---	---	
1,3-Dichloropropane	1.12	---	0.0568	mg/kg dry	50	1.14	ND	99	77-121%	---	---	
2,2-Dichloropropane	1.33	---	0.0568	mg/kg dry	50	1.14	ND	117	67-133%	---	---	
1,1-Dichloropropene	1.12	---	0.0568	mg/kg dry	50	1.14	ND	98	76-125%	---	---	
cis-1,3-Dichloropropene	1.03	---	0.0568	mg/kg dry	50	1.14	ND	91	74-126%	---	---	
trans-1,3-Dichloropropene	1.18	---	0.0568	mg/kg dry	50	1.14	ND	104	71-130%	---	---	
Ethylbenzene	1.09	---	0.0284	mg/kg dry	50	1.14	ND	96	76-122%	---	---	
Hexachlorobutadiene	1.10	---	0.114	mg/kg dry	50	1.14	ND	96	61-135%	---	---	
2-Hexanone	2.69	---	0.568	mg/kg dry	50	2.27	ND	119	53-145%	---	---	
Isopropylbenzene	1.15	---	0.0568	mg/kg dry	50	1.14	ND	101	68-134%	---	---	
4-Isopropyltoluene	1.05	---	0.0568	mg/kg dry	50	1.14	ND	92	73-127%	---	---	
Methylene chloride	1.05	---	0.284	mg/kg dry	50	1.14	ND	92	70-128%	---	---	
4-Methyl-2-pentanone (MiBK)	2.91	---	0.568	mg/kg dry	50	2.27	ND	128	65-135%	---	---	Q-54a
Methyl tert-butyl ether (MTBE)	1.14	---	0.0568	mg/kg dry	50	1.14	ND	100	73-125%	---	---	
Naphthalene	1.04	---	0.114	mg/kg dry	50	1.14	ND	91	62-129%	---	---	

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**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091247 - EPA 5035A						Soil						
Matrix Spike (8091247-MS1)			Prepared: 09/27/18 10:21 Analyzed: 09/28/18 14:10									
QC Source Sample: Non-SDG (A810768-02)												
n-Propylbenzene	1.05	---	0.0284	mg/kg dry	50	1.14	ND	92	73-125%	---	---	
Styrene	1.13	---	0.0568	mg/kg dry	50	1.14	ND	100	76-124%	---	---	
1,1,1,2-Tetrachloroethane	1.12	---	0.0284	mg/kg dry	50	1.14	ND	99	78-125%	---	---	
1,1,2,2-Tetrachloroethane	1.14	---	0.0568	mg/kg dry	50	1.14	ND	100	70-124%	---	---	
Tetrachloroethene (PCE)	1.19	---	0.0284	mg/kg dry	50	1.14	ND	105	73-128%	---	---	
Toluene	1.08	---	0.0568	mg/kg dry	50	1.14	ND	95	77-121%	---	---	
1,2,3-Trichlorobenzene	1.13	---	0.284	mg/kg dry	50	1.14	ND	99	66-130%	---	---	
1,2,4-Trichlorobenzene	1.08	---	0.284	mg/kg dry	50	1.14	ND	95	67-129%	---	---	
1,1,1-Trichloroethane	1.14	---	0.0284	mg/kg dry	50	1.14	ND	100	73-130%	---	---	
1,1,2-Trichloroethane	1.12	---	0.0284	mg/kg dry	50	1.14	ND	99	78-121%	---	---	
Trichloroethene (TCE)	1.11	---	0.0284	mg/kg dry	50	1.14	ND	98	77-123%	---	---	
Trichlorofluoromethane	1.69	---	0.114	mg/kg dry	50	1.14	ND	149	62-140%	---	---	Q-54
1,2,3-Trichloropropane	1.11	---	0.0568	mg/kg dry	50	1.14	ND	98	73-125%	---	---	
1,2,4-Trimethylbenzene	1.05	---	0.0568	mg/kg dry	50	1.14	ND	93	75-123%	---	---	
1,3,5-Trimethylbenzene	1.06	---	0.0568	mg/kg dry	50	1.14	ND	93	73-124%	---	---	
Vinyl chloride	1.33	---	0.0284	mg/kg dry	50	1.14	ND	117	56-135%	---	---	
m,p-Xylene	2.19	---	0.0568	mg/kg dry	50	2.27	ND	96	77-124%	---	---	
o-Xylene	1.09	---	0.0284	mg/kg dry	50	1.14	ND	96	77-123%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 97 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		98 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		100 %		80-120 %		"						

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091281 - EPA 3546						Soil						
Blank (8091281-BLK1)			Prepared: 09/28/18 13:56 Analyzed: 10/01/18 10:33									
EPA 8270D (SIM)												
Acenaphthene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 80 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		90 %		54-127 %		"						

LCS (8091281-BS1)

Prepared: 09/28/18 13:56 Analyzed: 10/01/18 11:00

EPA 8270D (SIM)

Acenaphthene	0.751	---	0.0100	mg/kg wet	1	0.800	---	94	40-122%	---	---
Acenaphthylene	0.752	---	0.0100	mg/kg wet	1	0.800	---	94	32-132%	---	---
Anthracene	0.741	---	0.0100	mg/kg wet	1	0.800	---	93	47-123%	---	---
Benz(a)anthracene	0.713	---	0.0100	mg/kg wet	1	0.800	---	89	49-126%	---	---
Benzo(a)pyrene	0.759	---	0.0100	mg/kg wet	1	0.800	---	95	45-129%	---	---
Benzo(b)fluoranthene	0.732	---	0.0100	mg/kg wet	1	0.800	---	92	45-132%	---	---
Benzo(k)fluoranthene	0.763	---	0.0100	mg/kg wet	1	0.800	---	95	47-132%	---	---
Benzo(g,h,i)perylene	0.666	---	0.0100	mg/kg wet	1	0.800	---	83	43-134%	---	---
Chrysene	0.744	---	0.0100	mg/kg wet	1	0.800	---	93	50-124%	---	---

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EPA ID: OR01039

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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091281 - EPA 3546						Soil						
LCS (8091281-BS1)			Prepared: 09/28/18 13:56		Analyzed: 10/01/18 11:00							
Dibenz(a,h)anthracene	0.767	---	0.0100	mg/kg wet	1	0.800	---	96	45-134%	---	---	
Dibenzofuran	0.727	---	0.0100	mg/kg wet	1	0.800	---	91	44-120%	---	---	
Fluoranthene	0.758	---	0.0100	mg/kg wet	1	0.800	---	95	50-127%	---	---	
Fluorene	0.746	---	0.0100	mg/kg wet	1	0.800	---	93	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	0.687	---	0.0100	mg/kg wet	1	0.800	---	86	45-133%	---	---	
1-Methylnaphthalene	0.745	---	0.0100	mg/kg wet	1	0.800	---	93	40-120%	---	---	
2-Methylnaphthalene	0.739	---	0.0100	mg/kg wet	1	0.800	---	92	38-122%	---	---	
Naphthalene	0.705	---	0.0100	mg/kg wet	1	0.800	---	88	35-123%	---	---	
Phenanthrene	0.738	---	0.0100	mg/kg wet	1	0.800	---	92	50-121%	---	---	
Pyrene	0.751	---	0.0100	mg/kg wet	1	0.800	---	94	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 80 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		84 %		54-127 %		"						
Duplicate (8091281-DUP1)			Prepared: 09/28/18 13:56		Analyzed: 10/01/18 12:19							
QC Source Sample: Non-SDG (A810481-01)												
Acenaphthene	ND	---	0.818	mg/kg dry	5	---	ND	---	---	---	30%	R-02
Acenaphthylene	ND	---	0.245	mg/kg dry	5	---	ND	---	---	---	30%	R-02
Anthracene	ND	---	0.259	mg/kg dry	5	---	ND	---	---	---	30%	R-02
Benz(a)anthracene	ND	---	0.0681	mg/kg dry	5	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	---	0.0681	mg/kg dry	5	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	---	0.0681	mg/kg dry	5	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	---	0.0681	mg/kg dry	5	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	---	0.0681	mg/kg dry	5	---	ND	---	---	---	30%	
Chrysene	ND	---	0.0681	mg/kg dry	5	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	---	0.0681	mg/kg dry	5	---	ND	---	---	---	30%	
Dibenzofuran	ND	---	0.886	mg/kg dry	5	---	ND	---	---	---	30%	R-02
Fluoranthene	ND	---	0.0681	mg/kg dry	5	---	0.0592	---	---	***	30%	
Fluorene	1.59	---	0.0681	mg/kg dry	5	---	1.35	---	---	16	30%	
Indeno(1,2,3-cd)pyrene	ND	---	0.0681	mg/kg dry	5	---	ND	---	---	---	30%	
1-Methylnaphthalene	8.60	---	0.0681	mg/kg dry	5	---	6.71	---	---	25	30%	
2-Methylnaphthalene	11.5	---	0.0681	mg/kg dry	5	---	8.63	---	---	28	30%	
Naphthalene	2.09	---	0.0681	mg/kg dry	5	---	1.49	---	---	34	30%	Q-17
Phenanthrene	3.25	---	0.0681	mg/kg dry	5	---	2.69	---	---	19	30%	
Pyrene	0.163	---	0.0681	mg/kg dry	5	---	0.150	---	---	8	30%	M-02

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A810814 - 10 02 18 1251

QUALITY CONTROL (QC) SAMPLE RESULTS**Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091281 - EPA 3546						Soil						
Duplicate (8091281-DUP1)			Prepared: 09/28/18 13:56 Analyzed: 10/01/18 12:19									
QC Source Sample: Non-SDG (A810481-01)												
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 82 %		Limits: 44-120 %		Dilution: 5x						
p-Terphenyl-d14 (Surr)		86 %		54-127 %		"						
Matrix Spike (8091281-MS1)						Prepared: 09/28/18 13:56 Analyzed: 10/01/18 16:46						
QC Source Sample: Non-SDG (A810789-08)												
EPA 8270D (SIM)												
Acenaphthene	0.837	---	0.0120	mg/kg dry	1	0.957	ND	87	40-122%	---	---	
Acenaphthylene	0.846	---	0.0120	mg/kg dry	1	0.957	ND	88	32-132%	---	---	
Anthracene	0.799	---	0.0120	mg/kg dry	1	0.957	ND	83	47-123%	---	---	
Benz(a)anthracene	0.767	---	0.0120	mg/kg dry	1	0.957	ND	80	49-126%	---	---	
Benzo(a)pyrene	0.818	---	0.0120	mg/kg dry	1	0.957	ND	85	45-129%	---	---	
Benzo(b)fluoranthene	0.809	---	0.0120	mg/kg dry	1	0.957	ND	84	45-132%	---	---	
Benzo(k)fluoranthene	0.804	---	0.0120	mg/kg dry	1	0.957	ND	84	47-132%	---	---	
Benzo(g,h,i)perylene	0.691	---	0.0120	mg/kg dry	1	0.957	ND	72	43-134%	---	---	
Chrysene	0.801	---	0.0120	mg/kg dry	1	0.957	ND	84	50-124%	---	---	
Dibenz(a,h)anthracene	0.764	---	0.0120	mg/kg dry	1	0.957	ND	80	45-134%	---	---	
Dibenzofuran	0.813	---	0.0120	mg/kg dry	1	0.957	ND	85	44-120%	---	---	
Fluoranthene	0.822	---	0.0120	mg/kg dry	1	0.957	ND	86	50-127%	---	---	
Fluorene	0.844	---	0.0120	mg/kg dry	1	0.957	ND	88	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	0.721	---	0.0120	mg/kg dry	1	0.957	ND	75	45-133%	---	---	
1-Methylnaphthalene	0.817	---	0.0120	mg/kg dry	1	0.957	ND	85	40-120%	---	---	
2-Methylnaphthalene	0.815	---	0.0120	mg/kg dry	1	0.957	ND	85	38-122%	---	---	
Naphthalene	0.770	---	0.0120	mg/kg dry	1	0.957	ND	80	35-123%	---	---	
Phenanthrene	0.792	---	0.0120	mg/kg dry	1	0.957	ND	83	50-121%	---	---	
Pyrene	0.817	---	0.0120	mg/kg dry	1	0.957	ND	85	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 75 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		78 %		54-127 %		"						

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
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EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Total Metals by EPA 6020 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091279 - EPA 3051A												Soil
Blank (8091279-BLK1)												Prepared: 09/28/18 13:46 Analyzed: 09/28/18 16:19
<u>EPA 6020A</u>												
Cadmium	ND	---	0.192	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	---	0.962	mg/kg wet	10	---	---	---	---	---	---	
LCS (8091279-BS1)												Prepared: 09/28/18 13:46 Analyzed: 09/28/18 16:23
<u>EPA 6020A</u>												
Cadmium	47.1	---	0.200	mg/kg wet	10	50.0	---	94	80-120%	---	---	
Chromium	48.8	---	1.00	mg/kg wet	10	50.0	---	98	80-120%	---	---	
Duplicate (8091279-DUP1)												Prepared: 09/28/18 13:46 Analyzed: 09/28/18 16:55
<u>QC Source Sample: Non-SDG (A810808-03)</u>												
Cadmium	0.505	---	0.282	mg/kg dry	10	---	0.630	---	---	22	40%	
Chromium	20.6	---	1.41	mg/kg dry	10	---	22.6	---	---	9	40%	
Matrix Spike (8091279-MS1)												Prepared: 09/28/18 13:46 Analyzed: 09/28/18 16:59
<u>QC Source Sample: Non-SDG (A810808-03)</u>												
<u>EPA 6020A</u>												
Cadmium	65.4	---	0.270	mg/kg dry	10	67.4	0.630	96	75-125%	---	---	
Chromium	91.8	---	1.35	mg/kg dry	10	67.4	22.6	103	75-125%	---	---	

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Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810814 - 10 02 18 1251****QUALITY CONTROL (QC) SAMPLE RESULTS****Percent Dry Weight**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091262 - Total Solids (Dry Weight)							Soil					
Duplicate (8091262-DUP1)			Prepared: 09/28/18 10:14 Analyzed: 10/01/18 08:20									
QC Source Sample: Non-SDG (A810406-01)												
% Solids	89.9	---	1.00	% by Weight	1	---	90.1	---	---	0.2	10%	
Duplicate (8091262-DUP2)			Prepared: 09/28/18 10:14 Analyzed: 10/01/18 08:20									
QC Source Sample: Non-SDG (A810711-01)												
% Solids	22.5	---	1.00	% by Weight	1	---	20.4	---	---	10	10%	
Duplicate (8091262-DUP3)			Prepared: 09/28/18 10:14 Analyzed: 10/01/18 08:20									
QC Source Sample: Non-SDG (A810755-05)												
% Solids	83.8	---	1.00	% by Weight	1	---	84.4	---	---	0.7	10%	
Duplicate (8091262-DUP4)			Prepared: 09/28/18 10:14 Analyzed: 10/01/18 08:20									
QC Source Sample: Non-SDG (A810756-10)												
% Solids	86.0	---	1.00	% by Weight	1	---	87.1	---	---	1	10%	
Duplicate (8091262-DUP5)			Prepared: 09/28/18 10:14 Analyzed: 10/01/18 08:20									
QC Source Sample: Non-SDG (A810785-05)												
% Solids	80.8	---	1.00	% by Weight	1	---	80.8	---	---	0.07	10%	
Duplicate (8091262-DUP6)			Prepared: 09/28/18 19:25 Analyzed: 10/01/18 08:20									
QC Source Sample: Non-SDG (A810824-02)												
% Solids	92.6	---	1.00	% by Weight	1	---	93.0	---	---	0.4	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810814 - 10 02 18 1251

SAMPLE PREPARATION INFORMATION**Volatile Organic Compounds by EPA 5035A/8260C****Prep: EPA 5035A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8091247</u>							
A810814-01	Soil	5035A/8260C	09/27/18 10:10	09/27/18 10:10	5.74g/5mL	5g/5mL	0.87

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**Prep: EPA 3546**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8091281</u>							
A810814-01	Soil	EPA 8270D (SIM)	09/27/18 10:10	09/28/18 15:49	10.15g/5mL	10g/5mL	0.99
A810814-01RE1	Soil	EPA 8270D (SIM)	09/27/18 10:10	09/28/18 15:49	10.15g/5mL	10g/5mL	0.99

Total Metals by EPA 6020 (ICPMS)**Prep: EPA 3051A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8091279</u>							
A810814-01	Soil	EPA 6020A	09/27/18 10:10	09/28/18 15:51	0.468g/50mL	0.5g/50mL	1.07

Percent Dry Weight**Prep: Total Solids (Dry Weight)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8091262</u>							
A810814-01	Soil	EPA 8000C	09/27/18 10:10	09/28/18 19:25			NA

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Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810814 - 10 02 18 1251

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- M-02** Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
- Q-01** Spike recovery and/or RPD is outside acceptance limits.
- Q-05** Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
- Q-17** RPD between original and duplicate sample is outside of established control limits.
- Q-54** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +0.9%. The results are reported as Estimated Values.
- Q-54a** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +4.7%. The results are reported as Estimated Values.
- Q-56** Daily CCV/LCS recovery for this analyte was above the +/-20% criteria listed in EPA 8260C
- R-02** The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.

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Project Number: **Polygon-145-07**

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Report ID:

A810814 - 10 02 18 1251

REPORTING NOTES AND CONVENTIONS:**Abbreviations:**

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.

The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).

-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.

-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

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Project Manager: **Kyle Sattler**

Report ID:

A810814 - 10 02 18 1251

LABORATORY ACCREDITATION INFORMATION**TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039**

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
<u>All reported analytes are included in Apex Laboratories' current ORELAP scope.</u>					

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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Project: River Terrace Area 10
Project Number: Polygon-145-07
Project Manager: Kyle Sattler

Report ID:
A810814 - 10 02 18 1251

APEX LABS COOLER RECEIPT FORM

Client: GeoDesign Element WO#: A8 10814

Project/Project #: River Terrace Area 10

Delivery info:

Date/Time Received: 9/27/18 @ 1555 By: (8)
Delivered by: Apex ☐ Client ☒ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐

Cooler Inspection Inspected by: (8) : 9/27/18 @ 1555

Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒

Signed/Dated by Client? Yes ☒ No ☐

Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	<u>2.9</u>						
Received on Ice? (Y/N)	<u>Y</u>						
Temp. Blanks? (Y/N)	<u>N</u>						
Ice Type: (Gel/Real/Other)	<u>Real</u>						
Condition:	<u>Good</u>						

Cooler out of temp? (Y/N) ☒ Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No NA

Samples Inspection: Inspected by: ms : 9/28/18 @ 16:55

All Samples Intact? Yes ☒ No ☐ Comments:

Bottle Labels/COCs agree? Yes ☒ No ☐ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments:

Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments:

Water Samples: pH Checked and Appropriate (except VOAs): Yes ☐ No ☐ NA ☒

Comments:

Additional Information:

Labeled by: ls Witness: ms Cooler Inspected by: ms See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Wednesday, October 3, 2018

Kyle Sattler
GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

RE: A810830 - River Terrace Area 10 - Polygon-145-07

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A810830, which was received by the laboratory on 9/28/2018 at 4:55:00PM.

Cooler Temperatures:
Default Cooler 3.4 degC

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

A handwritten signature in black ink that reads "Philip Nerenberg".

Philip Nerenberg, Lab Director

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GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8I0830 - 10 03 18 1321

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-11E(1.5)	A8I0830-01	Soil	09/28/18 13:50	09/28/18 16:55
SS-12E(5.5)	A8I0830-02	Soil	09/28/18 13:55	09/28/18 16:55
SS-13N(2)	A8I0830-03	Soil	09/28/18 14:05	09/28/18 16:55

Apex Laboratories

Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-11E(1.5) (A8I0830-01)				Matrix: Soil		Batch: 8100474		
Diesel	ND	---	25.0	mg/kg dry	1	10/02/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/02/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 77 %		Limits: 50-150 %	1	10/02/18	NWTPH-Dx	
SS-12E(5.5) (A8I0830-02)				Matrix: Soil		Batch: 8100474		
Diesel	ND	---	25.4	mg/kg dry	1	10/02/18	NWTPH-Dx	
Oil	ND	---	50.8	mg/kg dry	1	10/02/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 76 %		Limits: 50-150 %	1	10/02/18	NWTPH-Dx	
SS-13N(2) (A8I0830-03)				Matrix: Soil		Batch: 8100474		
Diesel	35.9	---	25.7	mg/kg dry	1	10/02/18	NWTPH-Dx	
Oil	ND	---	51.4	mg/kg dry	1	10/02/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 79 %		Limits: 50-150 %	1	10/02/18	NWTPH-Dx	

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Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-11E(1.5) (A810830-01)		Matrix: Soil		Batch: 8091266				
Gasoline Range Organics	ND	---	6.67	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	109 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			97 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)	
SS-12E(5.5) (A810830-02)		Matrix: Soil		Batch: 8091266				
Gasoline Range Organics	18.0	---	6.81	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	113 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			101 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)	
SS-13N(2) (A810830-03)		Matrix: Soil		Batch: 8091266				
Gasoline Range Organics	66.4	---	6.88	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	112 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			98 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)	

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Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-11E(1.5) (A810830-01)				Matrix: Soil		Batch: 8091266		
Acetone	ND	---	1.33	mg/kg dry	50	10/01/18	5035A/8260C	
Acrylonitrile	ND	---	0.133	mg/kg dry	50	10/01/18	5035A/8260C	
Benzene	ND	---	0.0133	mg/kg dry	50	10/01/18	5035A/8260C	
Bromobenzene	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
Bromochloromethane	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
Bromodichloromethane	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
Bromoform	ND	---	0.133	mg/kg dry	50	10/01/18	5035A/8260C	
Bromomethane	ND	---	0.667	mg/kg dry	50	10/01/18	5035A/8260C	
2-Butanone (MEK)	ND	---	0.667	mg/kg dry	50	10/01/18	5035A/8260C	
n-Butylbenzene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
Carbon disulfide	ND	---	0.667	mg/kg dry	50	10/01/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
Chlorobenzene	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
Chloroethane	ND	---	0.667	mg/kg dry	50	10/01/18	5035A/8260C	
Chloroform	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
Chloromethane	ND	---	0.334	mg/kg dry	50	10/01/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
Dibromochloromethane	ND	---	0.133	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.334	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
Dibromomethane	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.133	mg/kg dry	50	10/01/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
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EPA ID: OR01039

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Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-11E(1.5) (A810830-01)				Matrix: Soil		Batch: 8091266		
1,2-Dichloropropane	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
Ethylbenzene	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.133	mg/kg dry	50	10/01/18	5035A/8260C	
2-Hexanone	ND	---	0.667	mg/kg dry	50	10/01/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
Methylene chloride	ND	---	0.334	mg/kg dry	50	10/01/18	5035A/8260C	
4-Methyl-2-pentanone (MIBK)	ND	---	0.667	mg/kg dry	50	10/01/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
Naphthalene	ND	---	0.133	mg/kg dry	50	10/01/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
Styrene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
Tetrachloroethene (PCE)	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
Toluene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.334	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.334	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.133	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,3-Trichloropropane	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
Vinyl chloride	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	
m,p-Xylene	ND	---	0.0667	mg/kg dry	50	10/01/18	5035A/8260C	
o-Xylene	ND	---	0.0334	mg/kg dry	50	10/01/18	5035A/8260C	

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Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-11E(1.5) (A810830-01)				Matrix: Soil		Batch: 8091266		
Surrogate: 1,4-Difluorobenzene (Surr)		Recovery: 103 %	Limits: 80-120 %	1	10/01/18	5035A/8260C		
Toluene-d8 (Surr)		97 %	80-120 %	1	10/01/18	5035A/8260C		
4-Bromofluorobenzene (Surr)		103 %	80-120 %	1	10/01/18	5035A/8260C		
SS-12E(5.5) (A810830-02)				Matrix: Soil		Batch: 8091266		
Acetone	ND	---	1.36	mg/kg dry	50	10/01/18	5035A/8260C	
Acrylonitrile	ND	---	0.136	mg/kg dry	50	10/01/18	5035A/8260C	
Benzene	ND	---	0.0136	mg/kg dry	50	10/01/18	5035A/8260C	
Bromobenzene	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
Bromochloromethane	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
Bromodichloromethane	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
Bromoform	ND	---	0.136	mg/kg dry	50	10/01/18	5035A/8260C	
Bromomethane	ND	---	0.681	mg/kg dry	50	10/01/18	5035A/8260C	
2-Butanone (MEK)	ND	---	0.681	mg/kg dry	50	10/01/18	5035A/8260C	
n-Butylbenzene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
Carbon disulfide	ND	---	0.681	mg/kg dry	50	10/01/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
Chlorobenzene	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
Chloroethane	ND	---	0.681	mg/kg dry	50	10/01/18	5035A/8260C	
Chloroform	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
Chloromethane	ND	---	0.340	mg/kg dry	50	10/01/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
Dibromochloromethane	ND	---	0.136	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.340	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
Dibromomethane	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.136	mg/kg dry	50	10/01/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	

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Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-12E(5.5) (A810830-02)				Matrix: Soil		Batch: 8091266		
1,2-Dichloroethane (EDC)	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dichloropropane	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
Ethylbenzene	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.136	mg/kg dry	50	10/01/18	5035A/8260C	
2-Hexanone	ND	---	0.681	mg/kg dry	50	10/01/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
Methylene chloride	ND	---	0.340	mg/kg dry	50	10/01/18	5035A/8260C	
4-Methyl-2-pentanone (MIBK)	ND	---	0.681	mg/kg dry	50	10/01/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
Naphthalene	ND	---	0.136	mg/kg dry	50	10/01/18	5035A/8260C	
n-Propylbenzene	0.0640	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
Styrene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
Tetrachloroethene (PCE)	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
Toluene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.340	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.340	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.136	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,3-Trichloropropane	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,4-Trimethylbenzene	0.374	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	

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Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-12E(5.5) (A810830-02)				Matrix: Soil		Batch: 8091266		
1,3,5-Trimethylbenzene	0.167	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
Vinyl chloride	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
m,p-Xylene	ND	---	0.0681	mg/kg dry	50	10/01/18	5035A/8260C	
o-Xylene	ND	---	0.0340	mg/kg dry	50	10/01/18	5035A/8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		Recovery: 103 %		Limits: 80-120 %	1	10/01/18	5035A/8260C	
Toluene-d8 (Surr)		95 %		80-120 %	1	10/01/18	5035A/8260C	
4-Bromofluorobenzene (Surr)		106 %		80-120 %	1	10/01/18	5035A/8260C	
SS-13N(2) (A810830-03)				Matrix: Soil		Batch: 8091266		
Acetone	ND	---	1.38	mg/kg dry	50	10/01/18	5035A/8260C	
Acrylonitrile	ND	---	0.138	mg/kg dry	50	10/01/18	5035A/8260C	
Benzene	ND	---	0.0138	mg/kg dry	50	10/01/18	5035A/8260C	
Bromobenzene	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
Bromochloromethane	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
Bromodichloromethane	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
Bromoform	ND	---	0.138	mg/kg dry	50	10/01/18	5035A/8260C	
Bromomethane	ND	---	0.688	mg/kg dry	50	10/01/18	5035A/8260C	
2-Butanone (MEK)	ND	---	0.688	mg/kg dry	50	10/01/18	5035A/8260C	
n-Butylbenzene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
Carbon disulfide	ND	---	0.688	mg/kg dry	50	10/01/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
Chlorobenzene	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
Chloroethane	ND	---	0.688	mg/kg dry	50	10/01/18	5035A/8260C	
Chloroform	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
Chloromethane	ND	---	0.344	mg/kg dry	50	10/01/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
Dibromochloromethane	ND	---	0.138	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.344	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
Dibromomethane	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-13N(2) (A810830-03)				Matrix: Soil		Batch: 8091266		
1,3-Dichlorobenzene	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.138	mg/kg dry	50	10/01/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dichloropropane	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
Ethylbenzene	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.138	mg/kg dry	50	10/01/18	5035A/8260C	
2-Hexanone	ND	---	0.688	mg/kg dry	50	10/01/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
Methylene chloride	ND	---	0.344	mg/kg dry	50	10/01/18	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	---	0.688	mg/kg dry	50	10/01/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
Naphthalene	ND	---	0.138	mg/kg dry	50	10/01/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
Styrene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
Tetrachloroethene (PCE)	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
Toluene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.344	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.344	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-13N(2) (A810830-03)				Matrix: Soil		Batch: 8091266		
Trichloroethene (TCE)	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.138	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,3-Trichloropropane	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,4-Trimethylbenzene	0.242	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
1,3,5-Trimethylbenzene	0.102	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
Vinyl chloride	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
m,p-Xylene	ND	---	0.0688	mg/kg dry	50	10/01/18	5035A/8260C	
o-Xylene	ND	---	0.0344	mg/kg dry	50	10/01/18	5035A/8260C	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>		<i>103 %</i>	<i>Limits:</i>	<i>80-120 %</i>	<i>1</i>	<i>10/01/18</i>
<i>Toluene-d8 (Surr)</i>				<i>95 %</i>		<i>80-120 %</i>	<i>1</i>	<i>10/01/18</i>
<i>4-Bromofluorobenzene (Surr)</i>				<i>105 %</i>		<i>80-120 %</i>	<i>1</i>	<i>10/01/18</i>

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-11E(1.5) (A810830-01)				Matrix: Soil		Batch: 8100456		
Acenaphthene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Acenaphthylene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Anthracene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benz(a)anthracene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(a)pyrene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(b)fluoranthene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(k)fluoranthene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(g,h,i)perylene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Chrysene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Dibenz(a,h)anthracene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Dibenzofuran	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Fluoranthene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Fluorene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Indeno(1,2,3-cd)pyrene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
1-Methylnaphthalene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
2-Methylnaphthalene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Naphthalene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Phenanthrene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Pyrene	ND	---	0.0108	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
<i>Surrogate: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery: 60 %</i>		<i>Limits: 44-120 %</i>	<i>1</i>	<i>10/01/18</i>	<i>EPA 8270D (SIM)</i>	
<i>p-Terphenyl-d14 (Surr)</i>		<i>66 %</i>		<i>54-127 %</i>	<i>1</i>	<i>10/01/18</i>	<i>EPA 8270D (SIM)</i>	

SS-12E(5.5) (A810830-02)				Matrix: Soil		Batch: 8100456		
Acenaphthene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Acenaphthylene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Anthracene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benz(a)anthracene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(a)pyrene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(b)fluoranthene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(k)fluoranthene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(g,h,i)perylene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Chrysene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Dibenz(a,h)anthracene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-12E(5.5) (A810830-02)				Matrix: Soil		Batch: 8100456		
Dibenzofuran	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Fluoranthene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Fluorene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Indeno(1,2,3-cd)pyrene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
1-Methylnaphthalene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
2-Methylnaphthalene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Naphthalene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Phenanthrene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Pyrene	ND	---	0.0123	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
<i>Surrogate: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery:</i>	62 %	<i>Limits:</i>	44-120 %	1	10/01/18	EPA 8270D (SIM)
<i>p-Terphenyl-d14 (Surr)</i>			66 %		54-127 %	1	10/01/18	EPA 8270D (SIM)
SS-13N(2) (A810830-03)				Matrix: Soil		Batch: 8100456		
Acenaphthene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Acenaphthylene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Anthracene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benz(a)anthracene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(a)pyrene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(b)fluoranthene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(k)fluoranthene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Benzo(g,h,i)perylene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Chrysene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Dibenz(a,h)anthracene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Dibenzofuran	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Fluoranthene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Fluorene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Indeno(1,2,3-cd)pyrene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
1-Methylnaphthalene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
2-Methylnaphthalene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Naphthalene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Phenanthrene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
Pyrene	ND	---	0.0127	mg/kg dry	1	10/01/18	EPA 8270D (SIM)	
<i>Surrogate: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery:</i>	64 %	<i>Limits:</i>	44-120 %	1	10/01/18	EPA 8270D (SIM)

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Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810830 - 10 03 18 1321

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-13N(2) (A810830-03)				Matrix: Soil		Batch: 8100456		
<i>Surrogate: p-Terphenyl-d14 (Surr)</i>		<i>Recovery: 68 %</i>		<i>Limits: 54-127 %</i>	<i>1</i>	<i>10/01/18</i>	<i>EPA 8270D (SIM)</i>	

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Total Metals by EPA 6020 (ICPMS)**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-11E(1.5) (A810830-01)		Matrix: Soil						
Batch: 8100448								
Cadmium	1.14	---	0.242	mg/kg dry	10	10/01/18	EPA 6020A	
Chromium	42.8	---	1.21	mg/kg dry	10	10/01/18	EPA 6020A	
Lead	10.3	---	0.242	mg/kg dry	10	10/01/18	EPA 6020A	
SS-12E(5.5) (A810830-02)		Matrix: Soil						
Batch: 8100448								
Cadmium	1.53	---	0.285	mg/kg dry	10	10/01/18	EPA 6020A	
Chromium	34.9	---	1.43	mg/kg dry	10	10/01/18	EPA 6020A	
Lead	8.84	---	0.285	mg/kg dry	10	10/01/18	EPA 6020A	
SS-13N(2) (A810830-03)		Matrix: Soil						
Batch: 8100448								
Cadmium	1.53	---	0.271	mg/kg dry	10	10/01/18	EPA 6020A	
Chromium	40.2	---	1.36	mg/kg dry	10	10/01/18	EPA 6020A	
Lead	8.24	---	0.271	mg/kg dry	10	10/01/18	EPA 6020A	

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503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****ANALYTICAL SAMPLE RESULTS****Percent Dry Weight**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-11E(1.5) (A810830-01)				Matrix: Soil		Batch: 8100451		
% Solids	82.5	---	1.00	% by Weight	1	10/02/18	EPA 8000C	
SS-12E(5.5) (A810830-02)				Matrix: Soil		Batch: 8100451		
% Solids	77.0	---	1.00	% by Weight	1	10/02/18	EPA 8000C	
SS-13N(2) (A810830-03)				Matrix: Soil		Batch: 8100451		
% Solids	77.0	---	1.00	% by Weight	1	10/02/18	EPA 8000C	

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Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100474 - EPA 3546 (Fuels)						Soil						
Blank (8100474-BLK1)			Prepared: 10/01/18 13:41		Analyzed: 10/01/18 21:52							
NWTPH-Dx												
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	50.0	mg/kg wet	1	---	---	---	---	---	---	
Mineral Oil	ND	---	33.3	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 103 %		Limits: 50-150 %		Dilution: 1x						
LCS (8100474-BS1)			Prepared: 10/01/18 13:41		Analyzed: 10/01/18 22:14							
NWTPH-Dx												
Diesel	106	---	25.0	mg/kg wet	1	125	---	85	76-115%	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 102 %		Limits: 50-150 %		Dilution: 1x						
Duplicate (8100474-DUP1)			Prepared: 10/01/18 13:41		Analyzed: 10/01/18 22:58							
QC Source Sample: Non-SDG (A810763-01)												
Diesel	ND	---	25.0	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	ND	---	50.0	mg/kg dry	1	---	ND	---	---	---	30%	
Mineral Oil	151	---	44.3	mg/kg dry	1	---	119	---	---	24	30%	
Surr: o-Terphenyl (Surr)		Recovery: 90 %		Limits: 50-150 %		Dilution: 1x						
Duplicate (8100474-DUP2)			Prepared: 10/01/18 13:41		Analyzed: 10/02/18 03:19							
QC Source Sample: SS-13N(2) (A810830-03)												
NWTPH-Dx												
Diesel	34.3	---	25.7	mg/kg dry	1	---	35.9	---	---	4	30%	
Oil	ND	---	51.5	mg/kg dry	1	---	ND	---	---	---	30%	
Mineral Oil	ND	---	51.5	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)		Recovery: 74 %		Limits: 50-150 %		Dilution: 1x						

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091266 - EPA 5035A						Soil						
Blank (8091266-BLK1)			Prepared: 10/01/18 09:30 Analyzed: 10/01/18 11:32									
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery:	107 %	Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)			97 %	50-150 %		"						
LCS (8091266-BS2)			Prepared: 10/01/18 09:30 Analyzed: 10/01/18 11:05									
NWTPH-Gx (MS)												
Gasoline Range Organics	27.4	---	5.00	mg/kg wet	50	25.0	---	110	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery:	108 %	Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)			99 %	50-150 %		"						
Duplicate (8091266-DUP1)			Prepared: 09/28/18 13:50 Analyzed: 10/01/18 12:25									
QC Source Sample: SS-11E(1.5) (A810830-01)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	5.96	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)		Recovery:	105 %	Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)			96 %	50-150 %		"						

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091266 - EPA 5035A						Soil						
Blank (8091266-BLK1)			Prepared: 10/01/18 09:30 Analyzed: 10/01/18 11:32									
5035A/8260C												
Acetone	ND	---	0.667	mg/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
Benzene	ND	---	0.00667	mg/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091266 - EPA 5035A						Soil						
Blank (8091266-BLK1)			Prepared: 10/01/18 09:30		Analyzed: 10/01/18 11:32							
1,2-Dichloropropane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Styrene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

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Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091266 - EPA 5035A						Soil						
Blank (8091266-BLK1)			Prepared: 10/01/18 09:30		Analyzed: 10/01/18 11:32							
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 103 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		97 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		102 %		80-120 %		"						
LCS (8091266-BS1)			Prepared: 10/01/18 09:30		Analyzed: 10/01/18 10:35							
5035A/8260C												
Acetone	1.73	---	1.00	mg/kg wet	50	2.00	---	86	80-120%	---	---	
Acrylonitrile	0.966	---	0.100	mg/kg wet	50	1.00	---	97	80-120%	---	---	
Benzene	1.04	---	0.0100	mg/kg wet	50	1.00	---	104	80-120%	---	---	
Bromobenzene	1.01	---	0.0250	mg/kg wet	50	1.00	---	101	80-120%	---	---	
Bromochloromethane	1.06	---	0.0500	mg/kg wet	50	1.00	---	106	80-120%	---	---	
Bromodichloromethane	1.06	---	0.0500	mg/kg wet	50	1.00	---	106	80-120%	---	---	
Bromoform	1.08	---	0.100	mg/kg wet	50	1.00	---	108	80-120%	---	---	
Bromomethane	0.848	---	0.500	mg/kg wet	50	1.00	---	85	80-120%	---	---	
2-Butanone (MEK)	1.85	---	0.500	mg/kg wet	50	2.00	---	92	80-120%	---	---	
n-Butylbenzene	0.928	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
sec-Butylbenzene	0.938	---	0.0500	mg/kg wet	50	1.00	---	94	80-120%	---	---	
tert-Butylbenzene	0.874	---	0.0500	mg/kg wet	50	1.00	---	87	80-120%	---	---	
Carbon disulfide	1.50	---	0.500	mg/kg wet	50	1.00	---	150	80-120%	---	---	Q-56
Carbon tetrachloride	0.925	---	0.0500	mg/kg wet	50	1.00	---	92	80-120%	---	---	
Chlorobenzene	0.977	---	0.0250	mg/kg wet	50	1.00	---	98	80-120%	---	---	
Chloroethane	3.52	---	0.500	mg/kg wet	50	1.00	---	352	80-120%	---	---	Q-56
Chloroform	1.00	---	0.0500	mg/kg wet	50	1.00	---	100	80-120%	---	---	
Chloromethane	1.13	---	0.250	mg/kg wet	50	1.00	---	113	80-120%	---	---	
2-Chlorotoluene	0.974	---	0.0500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
4-Chlorotoluene	0.913	---	0.0500	mg/kg wet	50	1.00	---	91	80-120%	---	---	
Dibromochloromethane	1.02	---	0.100	mg/kg wet	50	1.00	---	102	80-120%	---	---	
1,2-Dibromo-3-chloropropane	1.10	---	0.250	mg/kg wet	50	1.00	---	110	80-120%	---	---	
1,2-Dibromoethane (EDB)	0.994	---	0.0500	mg/kg wet	50	1.00	---	99	80-120%	---	---	
Dibromomethane	1.02	---	0.0500	mg/kg wet	50	1.00	---	102	80-120%	---	---	
1,2-Dichlorobenzene	0.986	---	0.0250	mg/kg wet	50	1.00	---	99	80-120%	---	---	
1,3-Dichlorobenzene	0.962	---	0.0250	mg/kg wet	50	1.00	---	96	80-120%	---	---	
1,4-Dichlorobenzene	0.964	---	0.0250	mg/kg wet	50	1.00	---	96	80-120%	---	---	
Dichlorodifluoromethane	1.03	---	0.100	mg/kg wet	50	1.00	---	103	80-120%	---	---	

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Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091266 - EPA 5035A						Soil						
LCS (8091266-BS1)			Prepared: 10/01/18 09:30		Analyzed: 10/01/18 10:35							
1,1-Dichloroethane	1.02	---	0.0250	mg/kg wet	50	1.00	---	102	80-120%	---	---	Q-56
1,2-Dichloroethane (EDC)	0.989	---	0.0250	mg/kg wet	50	1.00	---	99	80-120%	---	---	
1,1-Dichloroethene	1.50	---	0.0250	mg/kg wet	50	1.00	---	150	80-120%	---	---	
cis-1,2-Dichloroethene	1.02	---	0.0250	mg/kg wet	50	1.00	---	102	80-120%	---	---	
trans-1,2-Dichloroethene	1.05	---	0.0250	mg/kg wet	50	1.00	---	105	80-120%	---	---	
1,2-Dichloropropane	1.04	---	0.0250	mg/kg wet	50	1.00	---	104	80-120%	---	---	
1,3-Dichloropropane	0.971	---	0.0500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
2,2-Dichloropropane	1.05	---	0.0500	mg/kg wet	50	1.00	---	105	80-120%	---	---	
1,1-Dichloropropene	1.04	---	0.0500	mg/kg wet	50	1.00	---	104	80-120%	---	---	
cis-1,3-Dichloropropene	1.01	---	0.0500	mg/kg wet	50	1.00	---	101	80-120%	---	---	
trans-1,3-Dichloropropene	0.973	---	0.0500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
Ethylbenzene	0.955	---	0.0250	mg/kg wet	50	1.00	---	96	80-120%	---	---	
Hexachlorobutadiene	1.16	---	0.100	mg/kg wet	50	1.00	---	116	80-120%	---	---	
2-Hexanone	1.85	---	0.500	mg/kg wet	50	2.00	---	92	80-120%	---	---	
Isopropylbenzene	0.978	---	0.0500	mg/kg wet	50	1.00	---	98	80-120%	---	---	
4-Isopropyltoluene	0.968	---	0.0500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
Methylene chloride	0.983	---	0.250	mg/kg wet	50	1.00	---	98	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	1.75	---	0.500	mg/kg wet	50	2.00	---	87	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	0.928	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Naphthalene	1.04	---	0.100	mg/kg wet	50	1.00	---	104	80-120%	---	---	
n-Propylbenzene	0.924	---	0.0250	mg/kg wet	50	1.00	---	92	80-120%	---	---	
Styrene	0.982	---	0.0500	mg/kg wet	50	1.00	---	98	80-120%	---	---	
1,1,1,2-Tetrachloroethane	1.09	---	0.0250	mg/kg wet	50	1.00	---	109	80-120%	---	---	
1,1,2,2-Tetrachloroethane	0.966	---	0.0500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
Tetrachloroethene (PCE)	1.06	---	0.0250	mg/kg wet	50	1.00	---	106	80-120%	---	---	
Toluene	0.945	---	0.0500	mg/kg wet	50	1.00	---	94	80-120%	---	---	
1,2,3-Trichlorobenzene	1.15	---	0.250	mg/kg wet	50	1.00	---	115	80-120%	---	---	
1,2,4-Trichlorobenzene	1.18	---	0.250	mg/kg wet	50	1.00	---	118	80-120%	---	---	
1,1,1-Trichloroethane	0.973	---	0.0250	mg/kg wet	50	1.00	---	97	80-120%	---	---	
1,1,2-Trichloroethane	0.968	---	0.0250	mg/kg wet	50	1.00	---	97	80-120%	---	---	
Trichloroethene (TCE)	1.06	---	0.0250	mg/kg wet	50	1.00	---	106	80-120%	---	---	
Trichlorofluoromethane	4.19	---	0.100	mg/kg wet	50	1.00	---	419	80-120%	---	---	
1,2,3-Trichloropropane	0.889	---	0.0500	mg/kg wet	50	1.00	---	89	80-120%	---	---	
1,2,4-Trimethylbenzene	0.905	---	0.0500	mg/kg wet	50	1.00	---	91	80-120%	---	---	
											Q-56	

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place

Tigard, OR 97223

503-718-2323

EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle

Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091266 - EPA 5035A						Soil						
LCS (8091266-BS1)			Prepared: 10/01/18 09:30		Analyzed: 10/01/18 10:35							
1,3,5-Trimethylbenzene	0.918	---	0.0500	mg/kg wet	50	1.00	---	92	80-120%	---	---	
Vinyl chloride	0.968	---	0.0250	mg/kg wet	50	1.00	---	97	80-120%	---	---	
m,p-Xylene	1.88	---	0.0500	mg/kg wet	50	2.00	---	94	80-120%	---	---	
o-Xylene	0.928	---	0.0250	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 102 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		99 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		104 %		80-120 %		"						

Duplicate (8091266-DUP1)

Prepared: 09/28/18 13:50 Analyzed: 10/01/18 12:25

QC Source Sample: SS-11E(1.5) (A810830-01)**5035A/8260C**

Acetone	ND	---	1.19	mg/kg dry	50	---	ND	---	---	---	30%
Acrylonitrile	ND	---	0.119	mg/kg dry	50	---	ND	---	---	---	30%
Benzene	ND	---	0.0119	mg/kg dry	50	---	ND	---	---	---	30%
Bromobenzene	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%
Bromochloromethane	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%
Bromodichloromethane	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%
Bromoform	ND	---	0.119	mg/kg dry	50	---	ND	---	---	---	30%
Bromomethane	ND	---	0.596	mg/kg dry	50	---	ND	---	---	---	30%
2-Butanone (MEK)	ND	---	0.596	mg/kg dry	50	---	ND	---	---	---	30%
n-Butylbenzene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%
sec-Butylbenzene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%
tert-Butylbenzene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%
Carbon disulfide	ND	---	0.596	mg/kg dry	50	---	ND	---	---	---	30%
Carbon tetrachloride	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%
Chlorobenzene	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%
Chloroethane	ND	---	0.596	mg/kg dry	50	---	ND	---	---	---	30%
Chloroform	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%
Chloromethane	ND	---	0.298	mg/kg dry	50	---	ND	---	---	---	30%
2-Chlorotoluene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%
4-Chlorotoluene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%
Dibromochloromethane	ND	---	0.119	mg/kg dry	50	---	ND	---	---	---	30%
1,2-Dibromo-3-chloropropane	ND	---	0.298	mg/kg dry	50	---	ND	---	---	---	30%
1,2-Dibromoethane (EDB)	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810830 - 10 03 18 1321

QUALITY CONTROL (QC) SAMPLE RESULTS**Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091266 - EPA 5035A						Soil						
Duplicate (8091266-DUP1)			Prepared: 09/28/18 13:50		Analyzed: 10/01/18 12:25							
QC Source Sample: SS-11E(1.5) (A810830-01)												
Dibromomethane	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	0.119	mg/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	---	0.119	mg/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	---	0.596	mg/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
Methylene chloride	ND	---	0.298	mg/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	0.596	mg/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	---	0.119	mg/kg dry	50	---	ND	---	---	---	30%	
n-Propylbenzene	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
Styrene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	---	0.298	mg/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091266 - EPA 5035A						Soil						
Duplicate (8091266-DUP1)			Prepared: 09/28/18 13:50		Analyzed: 10/01/18 12:25							
QC Source Sample: SS-11E(1.5) (A810830-01)												
1,2,4-Trichlorobenzene	ND	---	0.298	mg/kg dry	50	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	---	0.119	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	ND	---	0.0596	mg/kg dry	50	---	ND	---	---	---	30%	
o-Xylene	ND	---	0.0298	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 102 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		97 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		104 %		80-120 %		"						
Matrix Spike (8091266-MS1)						Prepared: 09/28/18 14:05 Analyzed: 10/01/18 13:46						
QC Source Sample: SS-13N(2) (A810830-03)												
5035A/8260C												
Acetone	3.02	---	1.54	mg/kg dry	50	3.07	ND	98	36-164%	---	---	
Acrylonitrile	1.69	---	0.154	mg/kg dry	50	1.53	ND	110	65-134%	---	---	
Benzene	1.56	---	0.0154	mg/kg dry	50	1.53	ND	102	77-121%	---	---	
Bromobenzene	1.60	---	0.0384	mg/kg dry	50	1.53	ND	104	78-121%	---	---	
Bromochloromethane	1.74	---	0.0768	mg/kg dry	50	1.53	ND	113	78-125%	---	---	
Bromodichloromethane	1.61	---	0.0768	mg/kg dry	50	1.53	ND	105	75-127%	---	---	
Bromoform	1.56	---	0.154	mg/kg dry	50	1.53	ND	102	67-132%	---	---	
Bromomethane	1.44	---	0.768	mg/kg dry	50	1.53	ND	94	53-143%	---	---	
2-Butanone (MEK)	3.03	---	0.768	mg/kg dry	50	3.07	ND	99	51-148%	---	---	
n-Butylbenzene	1.40	---	0.0768	mg/kg dry	50	1.53	ND	91	70-128%	---	---	
sec-Butylbenzene	1.44	---	0.0768	mg/kg dry	50	1.53	ND	94	73-126%	---	---	
tert-Butylbenzene	1.34	---	0.0768	mg/kg dry	50	1.53	ND	87	73-125%	---	---	
Carbon disulfide	2.22	---	0.768	mg/kg dry	50	1.53	ND	145	63-132%	---	---	Q-54a
Carbon tetrachloride	1.39	---	0.0768	mg/kg dry	50	1.53	ND	91	70-135%	---	---	
Chlorobenzene	1.49	---	0.0384	mg/kg dry	50	1.53	ND	97	79-120%	---	---	

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091266 - EPA 5035A						Soil						
Matrix Spike (8091266-MS1)			Prepared: 09/28/18 14:05		Analyzed: 10/01/18 13:46							
QC Source Sample: SS-13N(2) (A810830-03)												
Chloroethane	6.32	---	0.768	mg/kg dry	50	1.53	ND	412	59-139%	---	---	Q-54
Chloroform	1.65	---	0.0768	mg/kg dry	50	1.53	ND	108	78-123%	---	---	
Chloromethane	1.75	---	0.384	mg/kg dry	50	1.53	ND	114	50-136%	---	---	
2-Chlorotoluene	1.52	---	0.0768	mg/kg dry	50	1.53	ND	99	75-122%	---	---	
4-Chlorotoluene	1.37	---	0.0768	mg/kg dry	50	1.53	ND	89	72-124%	---	---	
Dibromochloromethane	1.51	---	0.154	mg/kg dry	50	1.53	ND	99	74-126%	---	---	
1,2-Dibromo-3-chloropropane	1.56	---	0.384	mg/kg dry	50	1.53	ND	102	61-132%	---	---	
1,2-Dibromoethane (EDB)	1.57	---	0.0768	mg/kg dry	50	1.53	ND	102	78-122%	---	---	
Dibromomethane	1.66	---	0.0768	mg/kg dry	50	1.53	ND	108	78-125%	---	---	
1,2-Dichlorobenzene	1.46	---	0.0384	mg/kg dry	50	1.53	ND	95	78-121%	---	---	
1,3-Dichlorobenzene	1.45	---	0.0384	mg/kg dry	50	1.53	ND	94	77-121%	---	---	
1,4-Dichlorobenzene	1.43	---	0.0384	mg/kg dry	50	1.53	ND	93	75-120%	---	---	
Dichlorodifluoromethane	1.67	---	0.154	mg/kg dry	50	1.53	ND	109	29-149%	---	---	
1,1-Dichloroethane	1.65	---	0.0384	mg/kg dry	50	1.53	ND	107	76-125%	---	---	
1,2-Dichloroethane (EDC)	1.53	---	0.0384	mg/kg dry	50	1.53	ND	100	73-128%	---	---	
1,1-Dichloroethene	2.13	---	0.0384	mg/kg dry	50	1.53	ND	139	70-131%	---	---	Q-54c
cis-1,2-Dichloroethene	1.62	---	0.0384	mg/kg dry	50	1.53	ND	106	77-123%	---	---	
trans-1,2-Dichloroethene	1.63	---	0.0384	mg/kg dry	50	1.53	ND	106	74-125%	---	---	
1,2-Dichloropropane	1.62	---	0.0384	mg/kg dry	50	1.53	ND	105	76-123%	---	---	
1,3-Dichloropropane	1.51	---	0.0768	mg/kg dry	50	1.53	ND	98	77-121%	---	---	
2,2-Dichloropropane	1.48	---	0.0768	mg/kg dry	50	1.53	ND	96	67-133%	---	---	
1,1-Dichloropropene	1.57	---	0.0768	mg/kg dry	50	1.53	ND	102	76-125%	---	---	
cis-1,3-Dichloropropene	1.51	---	0.0768	mg/kg dry	50	1.53	ND	98	74-126%	---	---	
trans-1,3-Dichloropropene	1.46	---	0.0768	mg/kg dry	50	1.53	ND	95	71-130%	---	---	
Ethylbenzene	1.46	---	0.0384	mg/kg dry	50	1.53	ND	95	76-122%	---	---	
Hexachlorobutadiene	1.70	---	0.154	mg/kg dry	50	1.53	ND	111	61-135%	---	---	
2-Hexanone	2.99	---	0.768	mg/kg dry	50	3.07	ND	98	53-145%	---	---	
Isopropylbenzene	1.47	---	0.0768	mg/kg dry	50	1.53	ND	96	68-134%	---	---	
4-Isopropyltoluene	1.48	---	0.0768	mg/kg dry	50	1.53	ND	97	73-127%	---	---	
Methylene chloride	1.60	---	0.384	mg/kg dry	50	1.53	ND	105	70-128%	---	---	
4-Methyl-2-pentanone (MiBK)	2.89	---	0.768	mg/kg dry	50	3.07	ND	94	65-135%	---	---	
Methyl tert-butyl ether (MTBE)	1.45	---	0.0768	mg/kg dry	50	1.53	ND	94	73-125%	---	---	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

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Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091266 - EPA 5035A						Soil						
Matrix Spike (8091266-MS1)			Prepared: 09/28/18 14:05		Analyzed: 10/01/18 13:46							
QC Source Sample: SS-13N(2) (A810830-03)												
Naphthalene	1.62	---	0.154	mg/kg dry	50	1.53	ND	105	62-129%	---	---	
n-Propylbenzene	1.43	---	0.0384	mg/kg dry	50	1.53	ND	93	73-125%	---	---	
Styrene	1.49	---	0.0768	mg/kg dry	50	1.53	ND	97	76-124%	---	---	
1,1,1,2-Tetrachloroethane	1.61	---	0.0384	mg/kg dry	50	1.53	ND	105	78-125%	---	---	
1,1,2,2-Tetrachloroethane	1.51	---	0.0768	mg/kg dry	50	1.53	ND	99	70-124%	---	---	
Tetrachloroethene (PCE)	1.54	---	0.0384	mg/kg dry	50	1.53	ND	100	73-128%	---	---	
Toluene	1.39	---	0.0768	mg/kg dry	50	1.53	ND	91	77-121%	---	---	
1,2,3-Trichlorobenzene	1.66	---	0.384	mg/kg dry	50	1.53	ND	108	66-130%	---	---	
1,2,4-Trichlorobenzene	1.60	---	0.384	mg/kg dry	50	1.53	ND	104	67-129%	---	---	
1,1,1-Trichloroethane	1.49	---	0.0384	mg/kg dry	50	1.53	ND	97	73-130%	---	---	
1,1,2-Trichloroethane	1.53	---	0.0384	mg/kg dry	50	1.53	ND	100	78-121%	---	---	
Trichloroethene (TCE)	1.65	---	0.0384	mg/kg dry	50	1.53	ND	108	77-123%	---	---	
Trichlorofluoromethane	6.20	---	0.154	mg/kg dry	50	1.53	ND	404	62-140%	---	---	Q-54b
1,2,3-Trichloropropane	1.45	---	0.0768	mg/kg dry	50	1.53	ND	95	73-125%	---	---	
1,2,4-Trimethylbenzene	1.58	---	0.0768	mg/kg dry	50	1.53	0.242	87	75-123%	---	---	
1,3,5-Trimethylbenzene	1.48	---	0.0768	mg/kg dry	50	1.53	0.102	90	73-124%	---	---	
Vinyl chloride	1.57	---	0.0384	mg/kg dry	50	1.53	ND	102	56-135%	---	---	
m,p-Xylene	2.86	---	0.0768	mg/kg dry	50	3.07	0.0392	92	77-124%	---	---	
o-Xylene	1.43	---	0.0384	mg/kg dry	50	1.53	ND	93	77-123%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 102 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		96 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		107 %		80-120 %		"						

Apex Laboratories

Philip Nerenberg, Lab Director

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**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A810830 - 10 03 18 1321

QUALITY CONTROL (QC) SAMPLE RESULTS**Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100456 - EPA 3546						Soil						
Blank (8100456-BLK1)			Prepared: 10/01/18 10:04 Analyzed: 10/01/18 17:13									
EPA 8270D (SIM)												
Acenaphthene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 77 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		89 %		54-127 %		"						

LCS (8100456-BS1)

Prepared: 10/01/18 10:04 Analyzed: 10/01/18 17:39

EPA 8270D (SIM)

Acenaphthene	0.621	---	0.0100	mg/kg wet	1	0.800	---	78	40-122%	---	---
Acenaphthylene	0.626	---	0.0100	mg/kg wet	1	0.800	---	78	32-132%	---	---
Anthracene	0.592	---	0.0100	mg/kg wet	1	0.800	---	74	47-123%	---	---
Benz(a)anthracene	0.585	---	0.0100	mg/kg wet	1	0.800	---	73	49-126%	---	---
Benzo(a)pyrene	0.632	---	0.0100	mg/kg wet	1	0.800	---	79	45-129%	---	---
Benzo(b)fluoranthene	0.605	---	0.0100	mg/kg wet	1	0.800	---	76	45-132%	---	---
Benzo(k)fluoranthene	0.635	---	0.0100	mg/kg wet	1	0.800	---	79	47-132%	---	---
Benzo(g,h,i)perylene	0.532	---	0.0100	mg/kg wet	1	0.800	---	67	43-134%	---	---
Chrysene	0.612	---	0.0100	mg/kg wet	1	0.800	---	77	50-124%	---	---

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place

Tigard, OR 97223

503-718-2323

EPA ID: OR01039**GeoDesign, Inc.**

9450 SW Commerce Circle

Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100456 - EPA 3546						Soil						
LCS (8100456-BS1)			Prepared: 10/01/18 10:04		Analyzed: 10/01/18 17:39							
Dibenz(a,h)anthracene	0.620	---	0.0100	mg/kg wet	1	0.800	---	77	45-134%	---	---	
Dibenzofuran	0.559	---	0.0100	mg/kg wet	1	0.800	---	70	44-120%	---	---	
Fluoranthene	0.609	---	0.0100	mg/kg wet	1	0.800	---	76	50-127%	---	---	
Fluorene	0.628	---	0.0100	mg/kg wet	1	0.800	---	79	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	0.561	---	0.0100	mg/kg wet	1	0.800	---	70	45-133%	---	---	
1-Methylnaphthalene	0.624	---	0.0100	mg/kg wet	1	0.800	---	78	40-120%	---	---	
2-Methylnaphthalene	0.622	---	0.0100	mg/kg wet	1	0.800	---	78	38-122%	---	---	
Naphthalene	0.591	---	0.0100	mg/kg wet	1	0.800	---	74	35-123%	---	---	
Phenanthrene	0.586	---	0.0100	mg/kg wet	1	0.800	---	73	50-121%	---	---	
Pyrene	0.607	---	0.0100	mg/kg wet	1	0.800	---	76	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 72 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		78 %		54-127 %		"						

Duplicate (8100456-DUP1)

Prepared: 10/01/18 10:04 Analyzed: 10/01/18 18:32

QC Source Sample: SS-11E(1.5) (A810830-01)**EPA 8270D (SIM)**

Acenaphthene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Acenaphthylene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Anthracene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Benz(a)anthracene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Benzo(a)pyrene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Benzo(b)fluoranthene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Benzo(k)fluoranthene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Benzo(g,h,i)perylene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Chrysene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Dibenz(a,h)anthracene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Dibenzofuran	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Fluoranthene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Fluorene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Indeno(1,2,3-cd)pyrene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
1-Methylnaphthalene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
2-Methylnaphthalene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Naphthalene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%
Phenanthrene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100456 - EPA 3546						Soil						
Duplicate (8100456-DUP1)			Prepared: 10/01/18 10:04 Analyzed: 10/01/18 18:32									
QC Source Sample: SS-11E(1.5) (A810830-01)												
Pyrene	ND	---	0.0108	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 59 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		63 %		54-127 %		"						

Matrix Spike (8100456-MS1)

Prepared: 10/01/18 10:04 Analyzed: 10/01/18 19:25

QC Source Sample: SS-12E(5.5) (A810830-02)**EPA 8270D (SIM)**

Acenaphthene	0.595	---	0.0124	mg/kg dry	1	0.990	ND	60	40-122%	---	---	
Acenaphthylene	0.588	---	0.0124	mg/kg dry	1	0.990	ND	59	32-132%	---	---	
Anthracene	0.554	---	0.0124	mg/kg dry	1	0.990	ND	56	47-123%	---	---	
Benz(a)anthracene	0.555	---	0.0124	mg/kg dry	1	0.990	ND	56	49-126%	---	---	
Benzo(a)pyrene	0.507	---	0.0124	mg/kg dry	1	0.990	ND	51	45-129%	---	---	
Benzo(b)fluoranthene	0.578	---	0.0124	mg/kg dry	1	0.990	ND	58	45-132%	---	---	
Benzo(k)fluoranthene	0.606	---	0.0124	mg/kg dry	1	0.990	ND	61	47-132%	---	---	
Benzo(g,h,i)perylene	0.482	---	0.0124	mg/kg dry	1	0.990	ND	49	43-134%	---	---	
Chrysene	0.591	---	0.0124	mg/kg dry	1	0.990	ND	60	50-124%	---	---	
Dibenz(a,h)anthracene	0.593	---	0.0124	mg/kg dry	1	0.990	ND	60	45-134%	---	---	
Dibenzofuran	0.567	---	0.0124	mg/kg dry	1	0.990	ND	57	44-120%	---	---	
Fluoranthene	0.587	---	0.0124	mg/kg dry	1	0.990	ND	59	50-127%	---	---	
Fluorene	0.594	---	0.0124	mg/kg dry	1	0.990	ND	60	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	0.519	---	0.0124	mg/kg dry	1	0.990	ND	52	45-133%	---	---	
1-Methylnaphthalene	0.597	---	0.0124	mg/kg dry	1	0.990	ND	60	40-120%	---	---	
2-Methylnaphthalene	0.587	---	0.0124	mg/kg dry	1	0.990	ND	59	38-122%	---	---	
Naphthalene	0.561	---	0.0124	mg/kg dry	1	0.990	ND	57	35-123%	---	---	
Phenanthrene	0.569	---	0.0124	mg/kg dry	1	0.990	ND	57	50-121%	---	---	
Pyrene	0.579	---	0.0124	mg/kg dry	1	0.990	ND	58	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 55 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		59 %		54-127 %		"						

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Total Metals by EPA 6020 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100448 - EPA 3051A						Soil						
Blank (8100448-BLK1)			Prepared: 10/01/18 08:40		Analyzed: 10/01/18 15:20							
EPA 6020A												
Cadmium	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (8100448-BS1)												
			Prepared: 10/01/18 08:40		Analyzed: 10/01/18 15:24							
EPA 6020A												
Cadmium	50.1	---	0.200	mg/kg wet	10	50.0	---	100	80-120%	---	---	
Chromium	50.7	---	1.00	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Lead	52.0	---	0.200	mg/kg wet	10	50.0	---	104	80-120%	---	---	
Duplicate (8100448-DUP1)			Prepared: 10/01/18 08:40		Analyzed: 10/01/18 16:36							
QC Source Sample: SS-13N(2) (A8I0830-03)												
EPA 6020A												
Cadmium	1.46	---	0.278	mg/kg dry	10	---	1.53	---	---	5	40%	
Chromium	43.3	---	1.39	mg/kg dry	10	---	40.2	---	---	7	40%	
Lead	9.39	---	0.278	mg/kg dry	10	---	8.24	---	---	13	40%	
Matrix Spike (8100448-MS1)			Prepared: 10/01/18 08:40		Analyzed: 10/01/18 16:40							
QC Source Sample: SS-13N(2) (A8I0830-03)												
EPA 6020A												
Cadmium	74.8	---	0.288	mg/kg dry	10	72.0	1.53	102	75-125%	---	---	
Chromium	119	---	1.44	mg/kg dry	10	72.0	40.2	109	75-125%	---	---	
Lead	82.8	---	0.288	mg/kg dry	10	72.0	8.24	104	75-125%	---	---	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****QUALITY CONTROL (QC) SAMPLE RESULTS****Percent Dry Weight**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100451 - Total Solids (Dry Weight)							Soil					
Duplicate (8100451-DUP1)			Prepared: 10/01/18 09:22		Analyzed: 10/02/18 08:49							
QC Source Sample: Non-SDG (A810567-02)												
% Solids	91.2	---	1.00	% by Weight	1	---	91.1	---	---	0.1	10%	
Duplicate (8100451-DUP2)			Prepared: 10/01/18 09:22		Analyzed: 10/02/18 08:49							
QC Source Sample: Non-SDG (A810763-05)												
% Solids	83.1	---	1.00	% by Weight	1	---	83.3	---	---	0.2	10%	
Duplicate (8100451-DUP3)			Prepared: 10/01/18 09:22		Analyzed: 10/02/18 08:49							
QC Source Sample: Non-SDG (A810789-06)												
% Solids	75.5	---	1.00	% by Weight	1	---	76.9	---	---	2	10%	
Duplicate (8100451-DUP4)			Prepared: 10/01/18 09:22		Analyzed: 10/02/18 08:49							
QC Source Sample: SS-13N(2) (A810830-03)												
EPA 8000C												
% Solids	76.2	---	1.00	% by Weight	1	---	77.0	---	---	0.9	10%	
Duplicate (8100451-DUP5)			Prepared: 10/01/18 19:17		Analyzed: 10/02/18 08:49							
QC Source Sample: Non-SDG (A8J0027-01)												
% Solids	89.8	---	1.00	% by Weight	1	---	89.8	---	---	0.03	10%	
Duplicate (8100451-DUP6)			Prepared: 10/01/18 19:17		Analyzed: 10/02/18 08:49							
QC Source Sample: Non-SDG (A8J0031-01)												
% Solids	89.7	---	1.00	% by Weight	1	---	88.8	---	---	0.9	10%	
Duplicate (8100451-DUP7)			Prepared: 10/01/18 19:17		Analyzed: 10/02/18 08:49							
QC Source Sample: Non-SDG (A8J0033-07)												
% Solids	78.2	---	1.00	% by Weight	1	---	78.9	---	---	0.9	10%	
Duplicate (8100451-DUP8)			Prepared: 10/01/18 19:17		Analyzed: 10/02/18 08:49							
QC Source Sample: Non-SDG (A8J0033-14)												
% Solids	72.3	---	1.00	% by Weight	1	---	75.2	---	---	4	10%	

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Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810830 - 10 03 18 1321

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100451 - Total Solids (Dry Weight)							Soil					
Duplicate (8100451-DUP9)			Prepared: 10/01/18 19:17 Analyzed: 10/02/18 08:49									
QC Source Sample: Non-SDG (A8J0034-03)												
% Solids	76.9	---	1.00	% by Weight	1	---	79.0	---	---	3	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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EPA ID: OR01039

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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A810830 - 10 03 18 1321****SAMPLE PREPARATION INFORMATION****Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8100474							
A810830-01	Soil	NWTPH-Dx	09/28/18 13:50	10/01/18 13:41	10.56g/5mL	10g/5mL	0.95
A810830-02	Soil	NWTPH-Dx	09/28/18 13:55	10/01/18 13:41	10.23g/5mL	10g/5mL	0.98
A810830-03	Soil	NWTPH-Dx	09/28/18 14:05	10/01/18 13:41	10.12g/5mL	10g/5mL	0.99

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8091266							
A810830-01	Soil	NWTPH-Gx (MS)	09/28/18 13:50	09/28/18 13:50	5.4g/5mL	5g/5mL	0.93
A810830-02	Soil	NWTPH-Gx (MS)	09/28/18 13:55	09/28/18 13:55	6.11g/5mL	5g/5mL	0.82
A810830-03	Soil	NWTPH-Gx (MS)	09/28/18 14:05	09/28/18 14:05	6.03g/5mL	5g/5mL	0.83

Volatile Organic Compounds by EPA 5035A/8260C

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8091266							
A810830-01	Soil	5035A/8260C	09/28/18 13:50	09/28/18 13:50	5.4g/5mL	5g/5mL	0.93
A810830-02	Soil	5035A/8260C	09/28/18 13:55	09/28/18 13:55	6.11g/5mL	5g/5mL	0.82
A810830-03	Soil	5035A/8260C	09/28/18 14:05	09/28/18 14:05	6.03g/5mL	5g/5mL	0.83

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8100456							
A810830-01	Soil	EPA 8270D (SIM)	09/28/18 13:50	10/01/18 10:04	11.22g/5mL	10g/5mL	0.89
A810830-02	Soil	EPA 8270D (SIM)	09/28/18 13:55	10/01/18 10:04	10.53g/5mL	10g/5mL	0.95
A810830-03	Soil	EPA 8270D (SIM)	09/28/18 14:05	10/01/18 13:37	10.23g/5mL	10g/5mL	0.98

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8100448							

Apex Laboratories

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810830 - 10 03 18 1321

SAMPLE PREPARATION INFORMATION**Total Metals by EPA 6020 (ICPMS)****Prep: EPA 3051A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A810830-01	Soil	EPA 6020A	09/28/18 13:50	10/01/18 08:40	0.502g/50mL	0.5g/50mL	1.00
A810830-02	Soil	EPA 6020A	09/28/18 13:55	10/01/18 08:40	0.455g/50mL	0.5g/50mL	1.10
A810830-03	Soil	EPA 6020A	09/28/18 14:05	10/01/18 08:40	0.479g/50mL	0.5g/50mL	1.04

Percent Dry Weight**Prep: Total Solids (Dry Weight)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8100451</u>							
A810830-01	Soil	EPA 8000C	09/28/18 13:50	10/01/18 09:22			NA
A810830-02	Soil	EPA 8000C	09/28/18 13:55	10/01/18 09:22			NA
A810830-03	Soil	EPA 8000C	09/28/18 14:05	10/01/18 09:22			NA

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A810830 - 10 03 18 1321

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- Q-54** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +232%. The results are reported as Estimated Values.
- Q-54a** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +29.7%. The results are reported as Estimated Values.
- Q-54b** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +299%. The results are reported as Estimated Values.
- Q-54c** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +30.2%. The results are reported as Estimated Values.
- Q-56** Daily CCV/LCS recovery for this analyte was above the +/-20% criteria listed in EPA 8260C

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A810830 - 10 03 18 1321

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.

The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).

-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.

-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

Apex Laboratories

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Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810830 - 10 03 18 1321

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories

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Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A810830 - 10 03 18 1321

LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
<u>All reported analytes are included in Apex Laboratories' current ORELAP scope.</u>					

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Philip Nerenberg, Lab Director

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GeoDesign, Inc.

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Wilsonville, OR 97070

Project: River Terrace Area 10

Project Number: Polygon-145-07

Project Manager: Kyle Sattler

Report ID:

A810830 - 10 03 18 1321

APEX LABS		CHAIN OF CUSTODY		Lab # <u>A810830</u>		COC of _____	
Company: <u>GeoDesign, Inc.</u>		Project Mgr: <u>Kyle R Sattler</u>		Project Name: <u>River Terrace Area 10</u>		Project # <u>Polygon-145-07</u>	
Address: <u>9450 SW Commerce Circle Suite 300 Wilsonville, OR</u>		Phone: <u>503-888-7877</u>		Fax: _____		Email: <u>k.sattler@geodesigninc.com</u>	
Sampled by: <u>Andre D. Dwyer</u>		Date: _____		Time: _____		PO# _____	
Site Location: <u>OR</u> WA		ANALYSIS REQUEST		TCLP Metals (8)		TCLP Metals (8)	
Other: _____		MATRIX		RCRA Metals (8)		RCRA Metals (8)	
SAMPLE ID		TIME		600 TIO		600 TIO	
<u>SS-12E (1.5)</u>		<u>1350</u>		8082 PCBs		8082 PCBs	
<u>SS-22E (5.5)</u>		<u>1355</u>		8270 SVOC		8270 SVOC	
<u>SS-BN (2)</u>		<u>1445</u>		8260 BVOCs		8260 BVOCs	
				8260 HVOCS		8260 HVOCS	
				8260 RBDM VOCs		8260 RBDM VOCs	
				8260 VOCs Full List		8260 VOCs Full List	
				NWTPH-GX		NWTPH-GX	
				NWTPH-DX		NWTPH-DX	
				NWTPH-HCID		NWTPH-HCID	
				# OF CONTAINERS		# OF CONTAINERS	
				DATE		DATE	
				LAB ID #		LAB ID #	
				YES		NO	
				Normal Turn Around Time (TAT) = 10 Business Days		Normal Turn Around Time (TAT) = 10 Business Days	
				1 Day		2 Day	
				4 DAY		5 DAY	
				Other: _____		Other: _____	
				TAT Requested (circle)		TAT Requested (circle)	
				SAMPLES ARE HELD FOR 30 DAYS		SAMPLES ARE HELD FOR 30 DAYS	
				RECEIVED BY:		RECEIVED BY:	
				Signature: <u>Andre D. Dwyer</u>		Signature: <u>Andre D. Dwyer</u>	
				Date: <u>9/18/18</u>		Date: <u>9/18/18</u>	
				Printed Name: <u>Andre D. Dwyer</u>		Printed Name: <u>Andre D. Dwyer</u>	
				Time: <u>1:55</u>		Time: <u>1:55</u>	
				Company: <u>GeoDesign, Inc.</u>		Company: <u>GeoDesign, Inc.</u>	
				Signature: <u>Kyle R Sattler</u>		Signature: <u>Kyle R Sattler</u>	
				Date: <u>9/18/18</u>		Date: <u>9/18/18</u>	
				Printed Name: <u>Kyle R Sattler</u>		Printed Name: <u>Kyle R Sattler</u>	
				Time: <u>1:55</u>		Time: <u>1:55</u>	
				Company: <u>Apex</u>		Company: <u>Apex</u>	

Results by Tuesday Please.

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

Project: River Terrace Area 10
Project Number: Polygon-145-07
Project Manager: Kyle Sattler

Report ID:
A810830 - 10 03 18 1321

Revised

Lab # A810830 COC #

PO#

CHAIN OF CUSTODY

APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: GeoDesign Inc Project Mgr: Kyle R. Sattler Project Name: River Terrace Area 10 Project # Polygon-145-07

Address: 9450 SW Commerce Circle Suite 300 Wilsonville, OR Phone: 503-938-7887 Email: k.sattler@geodesigninc.com

Sampled by: Andre D. Dwyer

Site Location: OR WA

Other:

LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-DX	NWTPH-CX	8260 VOCs Full LHM	8260 RBDH VOCs	8260 HVOCS	8260 BTEX VOCs	8270 SVOC	8270 SIM PAHs	8082 PCBs	600 TIO	HCRH Metals (8)	TCLP Metals (8)	AL, Sb, As, Ba, Be, Bi, Br, Cd, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Se, Si, Sn, Ti, V, Zn	TOTAL DISS TCLP	1200-COLS	1200-Z	
SS-11E (1.5)	10/18/18	1355	8	3	X	X	X	X														
SS-21E (5.5)	10/18/18	1355	1	1	X	X	X	X														
SS-BN (2)	10/18/18	1405	1	1	X	X	X	X														

SPECIAL INSTRUCTIONS: Results by Tuesday Please.

Normal Turn Around Time (TAT) = 10 Business Days YES NO

TAT Requested (circle) 1 Day 2 Day 3 Day 4 Day 5 Day Other:

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Andre D. Dwyer Date: 10/29/18 Signature: [Signature] Time: 10:55

RECEIVED BY: Philip Nerenberg Date: 10/29/18 Signature: [Signature] Time: 10:55

Printed Name: Andre D. Dwyer Printed Name: Philip Nerenberg

Company: GeoDesign Inc Company: Apex

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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GeoDesign, Inc.

9450 SW Commerce Circle

Wilsonville, OR 97070

Project: River Terrace Area 10Project Number: Polygon-145-07Project Manager: Kyle Sattler

Report ID:

A810830 - 10 03 18 1321

APEX LABS COOLER RECEIPT FORMClient: Geo Design inc Element WO#: A810830Project/Project #: River Terrace Area 10 / Polygon-145-07**Delivery info:**Date/Time Received: 9/28/18 @ 16:55 By: TAGDelivered by: Apex ☐ Client ☒ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐**Cooler Inspection** Inspected by: TAG : 9/28/18 @ 16:55Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒Signed/Dated by Client? Yes ☒ No ☐Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	<u>3.4</u>						
Received on Ice? (Y/N)	<u>Y</u>						
Temp. Blanks? (Y/N)	<u>N</u>						
Ice Type: (Gel/Real/Other)	<u>Real</u>						
Condition:	<u>good</u>						

Cooler out of temp? (Y/N) ☒ Possible reason why:If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA ☒**Samples Inspection:** Inspected by: CFH : 9/28/18 @ 17:53
1753 9/28/18All Samples Intact? Yes ☒ No ☐ Comments: _____Bottle Labels/COCs agree? Yes ☐ No ☒ Comments: Date on COC reads 9/29/18Sample time on SS-27E (1.5) reads 1550, Sample time on SS-22E (5.5)Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments: reads 1555Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments: _____

Water Samples: pH Checked and Appropriate (except VOAs): Yes ☐ No ☐ NA ☒

Comments: _____

Additional Information: Relinquished date on COC reads 9/29/18Date on SS-13N (2) reads 09/28/18

Labeled by:

TAG

Witness:

CFH

Cooler Inspected by:

TAGSee Project Contact Form: ☒Philip Nerenberg



Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Friday, October 5, 2018

Kyle Sattler
GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

RE: A8J0020 - River Terrace Area 10 - Polygon-145-07

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A8J0020, which was received by the laboratory on 10/1/2018 at 1:51:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

Cooler Receipt Info

(See Cooler Receipt Form for Details)

Default Cooler 4.1 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

Philip Nerenberg, Lab Director

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GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8J0020 - 10 05 18 1121

ANALYTICAL REPORT FOR SAMPLES**SAMPLE INFORMATION**

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-14S(2)	A8J0020-01	Soil	10/01/18 10:21	10/01/18 13:51
SS-15W(2)	A8J0020-02	Soil	10/01/18 10:24	10/01/18 13:51
SS-16N(5)	A8J0020-03	Soil	10/01/18 12:55	10/01/18 13:51
SS-17E(5)	A8J0020-04	Soil	10/01/18 10:38	10/01/18 13:51
SS-18E(5.5)	A8J0020-05	Soil	10/01/18 10:48	10/01/18 13:51
SS-19S(4)	A8J0020-06	Soil	10/01/18 10:55	10/01/18 13:51
SS-20S(4)	A8J0020-07	Soil	10/01/18 11:05	10/01/18 13:51
SS-21S(4.5)	A8J0020-08	Soil	10/01/18 11:15	10/01/18 13:51
SS-22W(5)	A8J0020-09	Soil	10/01/18 11:30	10/01/18 13:51
SS-23W(4.5)	A8J0020-10	Soil	10/01/18 11:46	10/01/18 13:51
SS-24W(3)	A8J0020-11	Soil	10/01/18 11:55	10/01/18 13:51
SS-25N(5)	A8J0020-12	Soil	10/01/18 12:19	10/01/18 13:51
SS-26N(5.5)	A8J0020-13	Soil	10/01/18 13:09	10/01/18 13:51

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GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****ANALYTICAL SAMPLE RESULTS****Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-14S(2) (A8J0020-01)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	25.1	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	ND	---	50.1	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 74 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	
SS-15W(2) (A8J0020-02)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	25.0	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 64 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	
SS-16N(5) (A8J0020-03)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	30.2	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	ND	---	60.4	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 57 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	
SS-17E(5) (A8J0020-04)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	25.0	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 71 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	
SS-18E(5.5) (A8J0020-05)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	25.0	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	94.8	---	50.0	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 68 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	
SS-19S(4) (A8J0020-06)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	25.8	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	ND	---	51.5	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 83 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	
SS-20S(4) (A8J0020-07)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	26.0	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	ND	---	52.1	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 73 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	

Apex Laboratories

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EPA ID: OR01039

GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A8J0020 - 10 05 18 1121

ANALYTICAL SAMPLE RESULTS**Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-21S(4.5) (A8J0020-08)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	25.0	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 62 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	
SS-22W(5) (A8J0020-09)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	25.6	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	ND	---	51.2	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 84 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	
SS-23W(4.5) (A8J0020-10)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	27.3	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	ND	---	54.6	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 78 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	
SS-24W(3) (A8J0020-11)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	25.9	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	ND	---	51.9	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 74 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	
SS-25N(5) (A8J0020-12)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	26.5	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	ND	---	52.9	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 87 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	
SS-26N(5.5) (A8J0020-13)				Matrix: Soil		Batch: 8100528		
Diesel	ND	---	30.3	mg/kg dry	1	10/03/18	NWTPH-Dx	
Oil	ND	---	60.6	mg/kg dry	1	10/03/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 82 %		Limits: 50-150 %	1	10/03/18	NWTPH-Dx	

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Philip Nerenberg, Lab Director

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**GeoDesign, Inc.**9450 SW Commerce Circle
Wilsonville, OR 97070Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****ANALYTICAL SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-14S(2) (A8J0020-01)				Matrix: Soil		Batch: 8100478		
Gasoline Range Organics	ND	---	7.03	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 99 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		91 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		
SS-15W(2) (A8J0020-02)				Matrix: Soil		Batch: 8100478		
Gasoline Range Organics	ND	---	6.42	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 96 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		90 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		
SS-16N(5) (A8J0020-03)				Matrix: Soil		Batch: 8100478		
Gasoline Range Organics	ND	---	9.75	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 100 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		92 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		
SS-17E(5) (A8J0020-04)				Matrix: Soil		Batch: 8100478		
Gasoline Range Organics	ND	---	6.65	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 95 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		91 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		
SS-18E(5.5) (A8J0020-05)				Matrix: Soil		Batch: 8100478		
Gasoline Range Organics	ND	---	7.10	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 98 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		92 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		
SS-19S(4) (A8J0020-06)				Matrix: Soil		Batch: 8100478		
Gasoline Range Organics	ND	---	6.54	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 98 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		93 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		
SS-20S(4) (A8J0020-07)				Matrix: Soil		Batch: 8100478		
Gasoline Range Organics	ND	---	6.74	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 98 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		93 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		
SS-21S(4.5) (A8J0020-08)				Matrix: Soil		Batch: 8100478		

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****ANALYTICAL SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-21S(4.5) (A8J0020-08)				Matrix: Soil		Batch: 8100478		
Gasoline Range Organics	ND	---	7.40	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 100 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		94 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		
SS-22W(5) (A8J0020-09)				Matrix: Soil		Batch: 8100478		
Gasoline Range Organics	ND	---	8.06	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 100 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		94 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		
SS-23W(4.5) (A8J0020-10)				Matrix: Soil		Batch: 8100478		
Gasoline Range Organics	ND	---	8.24	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 101 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		95 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		
SS-24W(3) (A8J0020-11)				Matrix: Soil		Batch: 8091266		
Gasoline Range Organics	ND	---	7.60	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 111 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		96 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		
SS-25N(5) (A8J0020-12)				Matrix: Soil		Batch: 8091266		
Gasoline Range Organics	ND	---	7.29	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 112 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		98 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		
SS-26N(5.5) (A8J0020-13)				Matrix: Soil		Batch: 8091266		
Gasoline Range Organics	ND	---	11.1	mg/kg dry	50	10/01/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 113 %	Limits: 50-150 %	1	10/01/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		99 %	50-150 %	1	10/01/18	NWTPH-Gx (MS)		

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****ANALYTICAL SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-18E(5.5) (A8J0020-05)				Matrix: Soil		Batch: 8100478		
Acetone	ND	---	1.42	mg/kg dry	50	10/01/18	5035A/8260C	
Acrylonitrile	ND	---	0.142	mg/kg dry	50	10/01/18	5035A/8260C	
Benzene	ND	---	0.0142	mg/kg dry	50	10/01/18	5035A/8260C	
Bromobenzene	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
Bromochloromethane	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
Bromodichloromethane	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
Bromoform	ND	---	0.142	mg/kg dry	50	10/01/18	5035A/8260C	
Bromomethane	ND	---	0.710	mg/kg dry	50	10/01/18	5035A/8260C	
2-Butanone (MEK)	ND	---	0.710	mg/kg dry	50	10/01/18	5035A/8260C	
n-Butylbenzene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
sec-Butylbenzene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
tert-Butylbenzene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
Carbon disulfide	ND	---	0.710	mg/kg dry	50	10/01/18	5035A/8260C	
Carbon tetrachloride	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
Chlorobenzene	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
Chloroethane	ND	---	0.710	mg/kg dry	50	10/01/18	5035A/8260C	
Chloroform	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
Chloromethane	ND	---	0.355	mg/kg dry	50	10/01/18	5035A/8260C	
2-Chlorotoluene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
4-Chlorotoluene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
Dibromochloromethane	ND	---	0.142	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	---	0.355	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
Dibromomethane	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dichlorobenzene	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
1,3-Dichlorobenzene	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
1,4-Dichlorobenzene	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
Dichlorodifluoromethane	ND	---	0.142	mg/kg dry	50	10/01/18	5035A/8260C	
1,1-Dichloroethane	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
1,1-Dichloroethene	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****ANALYTICAL SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-18E(5.5) (A8J0020-05)				Matrix: Soil		Batch: 8100478		
1,2-Dichloropropane	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
1,3-Dichloropropane	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
2,2-Dichloropropane	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
1,1-Dichloropropene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
Ethylbenzene	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
Hexachlorobutadiene	ND	---	0.142	mg/kg dry	50	10/01/18	5035A/8260C	
2-Hexanone	ND	---	0.710	mg/kg dry	50	10/01/18	5035A/8260C	
Isopropylbenzene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
4-Isopropyltoluene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
Methylene chloride	ND	---	0.355	mg/kg dry	50	10/01/18	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	---	0.710	mg/kg dry	50	10/01/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
Naphthalene	ND	---	0.142	mg/kg dry	50	10/01/18	5035A/8260C	
n-Propylbenzene	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
Styrene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
Tetrachloroethene (PCE)	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
Toluene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	---	0.355	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	---	0.355	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,1-Trichloroethane	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
1,1,2-Trichloroethane	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
Trichloroethene (TCE)	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
Trichlorofluoromethane	ND	---	0.142	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,3-Trichloropropane	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
1,2,4-Trimethylbenzene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
1,3,5-Trimethylbenzene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
Vinyl chloride	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	
m,p-Xylene	ND	---	0.0710	mg/kg dry	50	10/01/18	5035A/8260C	
o-Xylene	ND	---	0.0355	mg/kg dry	50	10/01/18	5035A/8260C	

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8J0020 - 10 05 18 1121

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-18E(5.5) (A8J0020-05)				Matrix: Soil		Batch: 8100478		
Surrogate: 1,4-Difluorobenzene (Surr)			Recovery: 97 %	Limits: 80-120 %	1	10/01/18	5035A/8260C	
Toluene-d8 (Surr)			97 %	80-120 %	1	10/01/18	5035A/8260C	
4-Bromofluorobenzene (Surr)			104 %	80-120 %	1	10/01/18	5035A/8260C	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A8J0020 - 10 05 18 1121

ANALYTICAL SAMPLE RESULTS**Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-18E(5.5) (A8J0020-05)				Matrix: Soil		Batch: 8100559		
Acenaphthene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Acenaphthylene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Anthracene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Benz(a)anthracene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Benzo(a)pyrene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Benzo(b)fluoranthene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Benzo(k)fluoranthene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Benzo(g,h,i)perylene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Chrysene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Dibenz(a,h)anthracene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Dibenzofuran	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Fluoranthene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Fluorene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Indeno(1,2,3-cd)pyrene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
1-Methylnaphthalene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
2-Methylnaphthalene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Naphthalene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Phenanthrene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Pyrene	ND	---	0.0115	mg/kg dry	1	10/04/18	EPA 8270D (SIM)	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 70 %		Limits: 44-120 %	1	10/04/18	EPA 8270D (SIM)	
p-Terphenyl-d14 (Surr)		70 %		54-127 %	1	10/04/18	EPA 8270D (SIM)	

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EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****ANALYTICAL SAMPLE RESULTS****Total Metals by EPA 6020 (ICPMS)**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-18E(5.5) (A8J0020-05)				Matrix: Soil				
Batch: 8100588								
Arsenic	6.19	---	1.24	mg/kg dry	10	10/03/18	EPA 6020A	Q-42
Barium	174	---	1.24	mg/kg dry	10	10/03/18	EPA 6020A	
Cadmium	0.962	---	0.247	mg/kg dry	10	10/03/18	EPA 6020A	
Chromium	34.7	---	1.24	mg/kg dry	10	10/03/18	EPA 6020A	
Lead	9.91	---	0.247	mg/kg dry	10	10/03/18	EPA 6020A	Q-17
Mercury	ND	---	0.0989	mg/kg dry	10	10/03/18	EPA 6020A	
Selenium	ND	---	1.24	mg/kg dry	10	10/03/18	EPA 6020A	
Silver	ND	---	0.247	mg/kg dry	10	10/03/18	EPA 6020A	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A8J0020 - 10 05 18 1121

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-14S(2) (A8J0020-01)				Matrix: Soil		Batch: 8100507		
% Solids	77.1	---	1.00	% by Weight	1	10/03/18	EPA 8000C	
SS-15W(2) (A8J0020-02)				Matrix: Soil		Batch: 8100507		
% Solids	78.7	---	1.00	% by Weight	1	10/03/18	EPA 8000C	
SS-16N(5) (A8J0020-03)				Matrix: Soil		Batch: 8100507		
% Solids	64.4	---	1.00	% by Weight	1	10/03/18	EPA 8000C	
SS-17E(5) (A8J0020-04)				Matrix: Soil		Batch: 8100507		
% Solids	80.8	---	1.00	% by Weight	1	10/03/18	EPA 8000C	
SS-18E(5.5) (A8J0020-05)				Matrix: Soil		Batch: 8100507		
% Solids	80.7	---	1.00	% by Weight	1	10/03/18	EPA 8000C	
SS-19S(4) (A8J0020-06)				Matrix: Soil		Batch: 8100507		
% Solids	76.9	---	1.00	% by Weight	1	10/03/18	EPA 8000C	
SS-20S(4) (A8J0020-07)				Matrix: Soil		Batch: 8100507		
% Solids	75.9	---	1.00	% by Weight	1	10/03/18	EPA 8000C	
SS-21S(4.5) (A8J0020-08)				Matrix: Soil		Batch: 8100507		
% Solids	72.8	---	1.00	% by Weight	1	10/03/18	EPA 8000C	
SS-22W(5) (A8J0020-09)				Matrix: Soil		Batch: 8100507		
% Solids	70.3	---	1.00	% by Weight	1	10/03/18	EPA 8000C	
SS-23W(4.5) (A8J0020-10)				Matrix: Soil		Batch: 8100507		
% Solids	70.2	---	1.00	% by Weight	1	10/03/18	EPA 8000C	
SS-24W(3) (A8J0020-11)				Matrix: Soil		Batch: 8100507		
% Solids	73.4	---	1.00	% by Weight	1	10/03/18	EPA 8000C	
SS-25N(5) (A8J0020-12)				Matrix: Soil		Batch: 8100507		
% Solids	74.6	---	1.00	% by Weight	1	10/03/18	EPA 8000C	
SS-26N(5.5) (A8J0020-13)				Matrix: Soil		Batch: 8100507		

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8J0020 - 10 05 18 1121

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-26N(5.5) (A8J0020-13)				Matrix: Soil		Batch: 8100507		
% Solids	62.4	---	1.00	% by Weight	1	10/03/18	EPA 8000C	

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EPA ID: OR01039

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Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes	
Batch 8100528 - EPA 3546 (Fuels)						Soil							
Blank (8100528-BLK1)			Prepared: 10/02/18 13:43		Analyzed: 10/02/18 21:42								
NWTPH-Dx													
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---		
Oil	ND	---	50.0	mg/kg wet	1	---	---	---	---	---	---		
Mineral Oil	ND	---	33.3	mg/kg wet	1	---	---	---	---	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 98 %		Limits: 50-150 %		Dilution: 1x							
LCS (8100528-BS1)			Prepared: 10/02/18 13:43		Analyzed: 10/02/18 22:03								
NWTPH-Dx													
Diesel	112	---	25.0	mg/kg wet	1	125	---	90	76-115%	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 103 %		Limits: 50-150 %		Dilution: 1x							
Duplicate (8100528-DUP1)			Prepared: 10/02/18 13:43		Analyzed: 10/02/18 22:47								
QC Source Sample: Non-SDG (A810756-08)													
Diesel	ND	---	25.0	mg/kg dry	1	---	ND	---	---	---	30%		
Oil	ND	---	50.0	mg/kg dry	1	---	ND	---	---	---	30%		
Mineral Oil	ND	---	41.9	mg/kg dry	1	---	ND	---	---	---	30%		
Surr: o-Terphenyl (Surr)		Recovery: 89 %		Limits: 50-150 %		Dilution: 1x							
Duplicate (8100528-DUP2)			Prepared: 10/02/18 13:43		Analyzed: 10/03/18 07:29								TEMP
QC Source Sample: Non-SDG (A8J0041-01)													
Diesel	ND	---	25.0	mg/kg dry	1	---	ND	---	---	---	30%		
Oil	ND	---	50.0	mg/kg dry	1	---	ND	---	---	---	30%		
Mineral Oil	ND	---	42.9	mg/kg dry	1	---	ND	---	---	---	30%		
Surr: o-Terphenyl (Surr)		Recovery: 83 %		Limits: 50-150 %		Dilution: 1x							

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8091266 - EPA 5035A						Soil						
Blank (8091266-BLK1)			Prepared: 10/01/18 09:30 Analyzed: 10/01/18 11:32									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery:	107 %	Limits:	50-150 %	Dilution: 1x						
1,4-Difluorobenzene (Sur)			97 %		50-150 %	"						
LCS (8091266-BS2)			Prepared: 10/01/18 09:30 Analyzed: 10/01/18 11:05									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	27.4	---	5.00	mg/kg wet	50	25.0	---	110	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery:	108 %	Limits:	50-150 %	Dilution: 1x						
1,4-Difluorobenzene (Sur)			99 %		50-150 %	"						
Duplicate (8091266-DUP1)			Prepared: 09/28/18 13:50 Analyzed: 10/01/18 12:25									
<u>QC Source Sample: Non-SDG (A810830-01)</u>												
Gasoline Range Organics	ND	---	5.96	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)		Recovery:	105 %	Limits:	50-150 %	Dilution: 1x						
1,4-Difluorobenzene (Sur)			96 %		50-150 %	"						

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EPA ID: OR01039

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Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100478 - EPA 5035A						Soil						
Blank (8100478-BLK1)			Prepared: 10/01/18 15:00 Analyzed: 10/01/18 16:59									
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 94 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		89 %		50-150 %		"						
LCS (8100478-BS2)			Prepared: 10/01/18 15:00 Analyzed: 10/01/18 16:32									
NWTPH-Gx (MS)												
Gasoline Range Organics	23.6	---	5.00	mg/kg wet	50	25.0	---	94	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 97 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		91 %		50-150 %		"						
Duplicate (8100478-DUP1)			Prepared: 10/01/18 10:21 Analyzed: 10/01/18 17:53									
QC Source Sample: SS-14S(2) (A8J0020-01)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	6.93	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 97 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		89 %		50-150 %		"						

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Tigard, OR 97223
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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100478 - EPA 5035A						Soil						
Blank (8100478-BLK1)			Prepared: 10/01/18 15:00		Analyzed: 10/01/18 16:59							
5035A/8260C												
Acetone	ND	---	0.667	mg/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
Benzene	ND	---	0.00667	mg/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	

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Project: **River Terrace Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A8J0020 - 10 05 18 1121

QUALITY CONTROL (QC) SAMPLE RESULTS**Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100478 - EPA 5035A						Soil						
Blank (8100478-BLK1)			Prepared: 10/01/18 15:00		Analyzed: 10/01/18 16:59							
1,2-Dichloropropane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	0.333	mg/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Styrene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	0.167	mg/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	0.0667	mg/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	---	0.0333	mg/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	---	0.0167	mg/kg wet	50	---	---	---	---	---	---	

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Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100478 - EPA 5035A						Soil						
Blank (8100478-BLK1)			Prepared: 10/01/18 15:00		Analyzed: 10/01/18 16:59							
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 95 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		99 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		104 %		80-120 %		"						
LCS (8100478-BS1)			Prepared: 10/01/18 15:00		Analyzed: 10/01/18 15:47							
5035A/8260C												
Acetone	1.82	---	1.00	mg/kg wet	50	2.00	---	91	80-120%	---	---	
Acrylonitrile	0.978	---	0.100	mg/kg wet	50	1.00	---	98	80-120%	---	---	
Benzene	0.928	---	0.0100	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Bromobenzene	1.04	---	0.0250	mg/kg wet	50	1.00	---	104	80-120%	---	---	
Bromochloromethane	1.04	---	0.0500	mg/kg wet	50	1.00	---	104	80-120%	---	---	
Bromodichloromethane	0.882	---	0.0500	mg/kg wet	50	1.00	---	88	80-120%	---	---	
Bromoform	1.07	---	0.100	mg/kg wet	50	1.00	---	107	80-120%	---	---	
Bromomethane	0.979	---	0.500	mg/kg wet	50	1.00	---	98	80-120%	---	---	
2-Butanone (MEK)	1.98	---	0.500	mg/kg wet	50	2.00	---	99	80-120%	---	---	
n-Butylbenzene	0.939	---	0.0500	mg/kg wet	50	1.00	---	94	80-120%	---	---	
sec-Butylbenzene	0.965	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
tert-Butylbenzene	0.965	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
Carbon disulfide	0.967	---	0.500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
Carbon tetrachloride	0.817	---	0.0500	mg/kg wet	50	1.00	---	82	80-120%	---	---	
Chlorobenzene	0.985	---	0.0250	mg/kg wet	50	1.00	---	99	80-120%	---	---	
Chloroethane	0.879	---	0.500	mg/kg wet	50	1.00	---	88	80-120%	---	---	
Chloroform	0.956	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
Chloromethane	0.848	---	0.250	mg/kg wet	50	1.00	---	85	80-120%	---	---	
2-Chlorotoluene	0.986	---	0.0500	mg/kg wet	50	1.00	---	99	80-120%	---	---	
4-Chlorotoluene	0.929	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
Dibromochloromethane	0.926	---	0.100	mg/kg wet	50	1.00	---	93	80-120%	---	---	
1,2-Dibromo-3-chloropropane	1.11	---	0.250	mg/kg wet	50	1.00	---	111	80-120%	---	---	
1,2-Dibromoethane (EDB)	1.07	---	0.0500	mg/kg wet	50	1.00	---	107	80-120%	---	---	
Dibromomethane	0.989	---	0.0500	mg/kg wet	50	1.00	---	99	80-120%	---	---	
1,2-Dichlorobenzene	1.04	---	0.0250	mg/kg wet	50	1.00	---	104	80-120%	---	---	
1,3-Dichlorobenzene	0.996	---	0.0250	mg/kg wet	50	1.00	---	100	80-120%	---	---	
1,4-Dichlorobenzene	0.967	---	0.0250	mg/kg wet	50	1.00	---	97	80-120%	---	---	
Dichlorodifluoromethane	0.801	---	0.100	mg/kg wet	50	1.00	---	80	80-120%	---	---	

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Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100478 - EPA 5035A						Soil						
LCS (8100478-BS1)			Prepared: 10/01/18 15:00		Analyzed: 10/01/18 15:47							
1,1-Dichloroethane	0.955	---	0.0250	mg/kg wet	50	1.00	---	95	80-120%	---	---	
1,2-Dichloroethane (EDC)	0.966	---	0.0250	mg/kg wet	50	1.00	---	97	80-120%	---	---	
1,1-Dichloroethene	0.954	---	0.0250	mg/kg wet	50	1.00	---	95	80-120%	---	---	
cis-1,2-Dichloroethene	0.962	---	0.0250	mg/kg wet	50	1.00	---	96	80-120%	---	---	
trans-1,2-Dichloroethene	0.948	---	0.0250	mg/kg wet	50	1.00	---	95	80-120%	---	---	
1,2-Dichloropropane	0.969	---	0.0250	mg/kg wet	50	1.00	---	97	80-120%	---	---	
1,3-Dichloropropane	1.01	---	0.0500	mg/kg wet	50	1.00	---	101	80-120%	---	---	
2,2-Dichloropropane	1.06	---	0.0500	mg/kg wet	50	1.00	---	106	80-120%	---	---	
1,1-Dichloropropene	0.927	---	0.0500	mg/kg wet	50	1.00	---	93	80-120%	---	---	
cis-1,3-Dichloropropene	0.921	---	0.0500	mg/kg wet	50	1.00	---	92	80-120%	---	---	
trans-1,3-Dichloropropene	1.01	---	0.0500	mg/kg wet	50	1.00	---	101	80-120%	---	---	
Ethylbenzene	0.960	---	0.0250	mg/kg wet	50	1.00	---	96	80-120%	---	---	
Hexachlorobutadiene	1.07	---	0.100	mg/kg wet	50	1.00	---	107	80-120%	---	---	
2-Hexanone	2.14	---	0.500	mg/kg wet	50	2.00	---	107	80-120%	---	---	
Isopropylbenzene	1.05	---	0.0500	mg/kg wet	50	1.00	---	105	80-120%	---	---	
4-Isopropyltoluene	1.00	---	0.0500	mg/kg wet	50	1.00	---	100	80-120%	---	---	
Methylene chloride	0.877	---	0.250	mg/kg wet	50	1.00	---	88	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	2.26	---	0.500	mg/kg wet	50	2.00	---	113	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	0.963	---	0.0500	mg/kg wet	50	1.00	---	96	80-120%	---	---	
Naphthalene	1.13	---	0.100	mg/kg wet	50	1.00	---	113	80-120%	---	---	
n-Propylbenzene	0.947	---	0.0250	mg/kg wet	50	1.00	---	95	80-120%	---	---	
Styrene	1.03	---	0.0500	mg/kg wet	50	1.00	---	103	80-120%	---	---	
1,1,1,2-Tetrachloroethane	0.931	---	0.0250	mg/kg wet	50	1.00	---	93	80-120%	---	---	
1,1,2,2-Tetrachloroethane	1.09	---	0.0500	mg/kg wet	50	1.00	---	109	80-120%	---	---	
Tetrachloroethene (PCE)	1.10	---	0.0250	mg/kg wet	50	1.00	---	110	80-120%	---	---	
Toluene	0.969	---	0.0500	mg/kg wet	50	1.00	---	97	80-120%	---	---	
1,2,3-Trichlorobenzene	1.11	---	0.250	mg/kg wet	50	1.00	---	111	80-120%	---	---	
1,2,4-Trichlorobenzene	1.13	---	0.250	mg/kg wet	50	1.00	---	113	80-120%	---	---	
1,1,1-Trichloroethane	0.875	---	0.0250	mg/kg wet	50	1.00	---	87	80-120%	---	---	
1,1,2-Trichloroethane	1.01	---	0.0250	mg/kg wet	50	1.00	---	101	80-120%	---	---	
Trichloroethene (TCE)	0.977	---	0.0250	mg/kg wet	50	1.00	---	98	80-120%	---	---	
Trichlorofluoromethane	0.957	---	0.100	mg/kg wet	50	1.00	---	96	80-120%	---	---	
1,2,3-Trichloropropane	1.02	---	0.0500	mg/kg wet	50	1.00	---	102	80-120%	---	---	
1,2,4-Trimethylbenzene	0.979	---	0.0500	mg/kg wet	50	1.00	---	98	80-120%	---	---	

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place

Tigard, OR 97223

503-718-2323

EPA ID: OR01039**GeoDesign, Inc.**

9450 SW Commerce Circle

Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100478 - EPA 5035A						Soil						
LCS (8100478-BS1)			Prepared: 10/01/18 15:00		Analyzed: 10/01/18 15:47							
1,3,5-Trimethylbenzene	0.981	---	0.0500	mg/kg wet	50	1.00	---	98	80-120%	---	---	
Vinyl chloride	0.954	---	0.0250	mg/kg wet	50	1.00	---	95	80-120%	---	---	
m,p-Xylene	1.92	---	0.0500	mg/kg wet	50	2.00	---	96	80-120%	---	---	
o-Xylene	0.961	---	0.0250	mg/kg wet	50	1.00	---	96	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 95 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		97 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		104 %		80-120 %		"						

Duplicate (8100478-DUP1)

Prepared: 10/01/18 10:21 Analyzed: 10/01/18 17:53

QC Source Sample: SS-14S(2) (A8J0020-01)**5035A/8260C**

Acetone	ND	---	1.39	mg/kg dry	50	---	ND	---	---	---	30%
Acrylonitrile	ND	---	0.139	mg/kg dry	50	---	ND	---	---	---	30%
Benzene	ND	---	0.0139	mg/kg dry	50	---	ND	---	---	---	30%
Bromobenzene	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%
Bromochloromethane	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%
Bromodichloromethane	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%
Bromoform	ND	---	0.139	mg/kg dry	50	---	ND	---	---	---	30%
Bromomethane	ND	---	0.693	mg/kg dry	50	---	ND	---	---	---	30%
2-Butanone (MEK)	ND	---	0.693	mg/kg dry	50	---	ND	---	---	---	30%
n-Butylbenzene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%
sec-Butylbenzene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%
tert-Butylbenzene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%
Carbon disulfide	ND	---	0.693	mg/kg dry	50	---	ND	---	---	---	30%
Carbon tetrachloride	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%
Chlorobenzene	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%
Chloroethane	ND	---	0.693	mg/kg dry	50	---	ND	---	---	---	30%
Chloroform	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%
Chloromethane	ND	---	0.346	mg/kg dry	50	---	ND	---	---	---	30%
2-Chlorotoluene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%
4-Chlorotoluene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%
Dibromochloromethane	ND	---	0.139	mg/kg dry	50	---	ND	---	---	---	30%
1,2-Dibromo-3-chloropropane	ND	---	0.346	mg/kg dry	50	---	ND	---	---	---	30%
1,2-Dibromoethane (EDB)	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%

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Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A8J0020 - 10 05 18 1121

QUALITY CONTROL (QC) SAMPLE RESULTS**Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100478 - EPA 5035A						Soil						
Duplicate (8100478-DUP1)			Prepared: 10/01/18 10:21		Analyzed: 10/01/18 17:53							
QC Source Sample: SS-14S(2) (A8J0020-01)												
Dibromomethane	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	0.139	mg/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	---	0.139	mg/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	---	0.693	mg/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
Methylene chloride	ND	---	0.346	mg/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	0.693	mg/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	---	0.139	mg/kg dry	50	---	ND	---	---	---	30%	
n-Propylbenzene	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
Styrene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	---	0.346	mg/kg dry	50	---	ND	---	---	---	30%	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100478 - EPA 5035A						Soil						
Duplicate (8100478-DUP1)			Prepared: 10/01/18 10:21		Analyzed: 10/01/18 17:53							
QC Source Sample: SS-14S(2) (A8J0020-01)												
1,2,4-Trichlorobenzene	ND	---	0.346	mg/kg dry	50	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	---	0.139	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	ND	---	0.0693	mg/kg dry	50	---	ND	---	---	---	30%	
o-Xylene	ND	---	0.0346	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 96 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		97 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		103 %		80-120 %		"						

Matrix Spike (8100478-MS1)

Prepared: 10/01/18 11:46 Analyzed: 10/01/18 22:23

QC Source Sample: SS-23W(4.5) (A8J0020-10)**5035A/8260C**

Acetone	3.41	---	1.65	mg/kg dry	50	3.29	ND	104	36-164%	---	---
Acrylonitrile	1.67	---	0.165	mg/kg dry	50	1.65	ND	101	65-134%	---	---
Benzene	1.56	---	0.0165	mg/kg dry	50	1.65	ND	95	77-121%	---	---
Bromobenzene	1.62	---	0.0412	mg/kg dry	50	1.65	ND	98	78-121%	---	---
Bromochloromethane	1.88	---	0.0824	mg/kg dry	50	1.65	ND	114	78-125%	---	---
Bromodichloromethane	1.48	---	0.0824	mg/kg dry	50	1.65	ND	90	75-127%	---	---
Bromoform	1.64	---	0.165	mg/kg dry	50	1.65	ND	99	67-132%	---	---
Bromomethane	1.88	---	0.824	mg/kg dry	50	1.65	ND	114	53-143%	---	---
2-Butanone (MEK)	3.41	---	0.824	mg/kg dry	50	3.29	ND	104	51-148%	---	---
n-Butylbenzene	1.37	---	0.0824	mg/kg dry	50	1.65	ND	83	70-128%	---	---
sec-Butylbenzene	1.48	---	0.0824	mg/kg dry	50	1.65	ND	90	73-126%	---	---
tert-Butylbenzene	1.49	---	0.0824	mg/kg dry	50	1.65	ND	90	73-125%	---	---
Carbon disulfide	1.61	---	0.824	mg/kg dry	50	1.65	ND	97	63-132%	---	---
Carbon tetrachloride	1.43	---	0.0824	mg/kg dry	50	1.65	ND	87	70-135%	---	---
Chlorobenzene	1.56	---	0.0412	mg/kg dry	50	1.65	ND	95	79-120%	---	---

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100478 - EPA 5035A						Soil						
Matrix Spike (8100478-MS1)			Prepared: 10/01/18 11:46		Analyzed: 10/01/18 22:23							
QC Source Sample: SS-23W(4.5) (A8J0020-10)												
Chloroethane	2.05	---	0.824	mg/kg dry	50	1.65	ND	125	59-139%	---	---	
Chloroform	1.64	---	0.0824	mg/kg dry	50	1.65	ND	100	78-123%	---	---	
Chloromethane	1.52	---	0.412	mg/kg dry	50	1.65	ND	92	50-136%	---	---	
2-Chlorotoluene	1.52	---	0.0824	mg/kg dry	50	1.65	ND	92	75-122%	---	---	
4-Chlorotoluene	1.48	---	0.0824	mg/kg dry	50	1.65	ND	90	72-124%	---	---	
Dibromochloromethane	1.45	---	0.165	mg/kg dry	50	1.65	ND	88	74-126%	---	---	
1,2-Dibromo-3-chloropropane	1.44	---	0.412	mg/kg dry	50	1.65	ND	88	61-132%	---	---	
1,2-Dibromoethane (EDB)	1.64	---	0.0824	mg/kg dry	50	1.65	ND	100	78-122%	---	---	
Dibromomethane	1.66	---	0.0824	mg/kg dry	50	1.65	ND	101	78-125%	---	---	
1,2-Dichlorobenzene	1.61	---	0.0412	mg/kg dry	50	1.65	ND	98	78-121%	---	---	
1,3-Dichlorobenzene	1.56	---	0.0412	mg/kg dry	50	1.65	ND	95	77-121%	---	---	
1,4-Dichlorobenzene	1.50	---	0.0412	mg/kg dry	50	1.65	ND	91	75-120%	---	---	
Dichlorodifluoromethane	1.51	---	0.165	mg/kg dry	50	1.65	ND	91	29-149%	---	---	
1,1-Dichloroethane	1.63	---	0.0412	mg/kg dry	50	1.65	ND	99	76-125%	---	---	
1,2-Dichloroethane (EDC)	1.71	---	0.0412	mg/kg dry	50	1.65	ND	104	73-128%	---	---	
1,1-Dichloroethene	1.68	---	0.0412	mg/kg dry	50	1.65	ND	102	70-131%	---	---	
cis-1,2-Dichloroethene	1.61	---	0.0412	mg/kg dry	50	1.65	ND	98	77-123%	---	---	
trans-1,2-Dichloroethene	1.64	---	0.0412	mg/kg dry	50	1.65	ND	99	74-125%	---	---	
1,2-Dichloropropane	1.64	---	0.0412	mg/kg dry	50	1.65	ND	99	76-123%	---	---	
1,3-Dichloropropane	1.59	---	0.0824	mg/kg dry	50	1.65	ND	96	77-121%	---	---	
2,2-Dichloropropane	1.57	---	0.0824	mg/kg dry	50	1.65	ND	95	67-133%	---	---	
1,1-Dichloropropene	1.57	---	0.0824	mg/kg dry	50	1.65	ND	95	76-125%	---	---	
cis-1,3-Dichloropropene	1.37	---	0.0824	mg/kg dry	50	1.65	ND	83	74-126%	---	---	
trans-1,3-Dichloropropene	1.57	---	0.0824	mg/kg dry	50	1.65	ND	95	71-130%	---	---	
Ethylbenzene	1.55	---	0.0412	mg/kg dry	50	1.65	ND	94	76-122%	---	---	
Hexachlorobutadiene	1.52	---	0.165	mg/kg dry	50	1.65	ND	92	61-135%	---	---	
2-Hexanone	3.39	---	0.824	mg/kg dry	50	3.29	ND	103	53-145%	---	---	
Isopropylbenzene	1.63	---	0.0824	mg/kg dry	50	1.65	ND	99	68-134%	---	---	
4-Isopropyltoluene	1.47	---	0.0824	mg/kg dry	50	1.65	ND	89	73-127%	---	---	
Methylene chloride	1.55	---	0.412	mg/kg dry	50	1.65	ND	94	70-128%	---	---	
4-Methyl-2-pentanone (MiBK)	3.71	---	0.824	mg/kg dry	50	3.29	ND	113	65-135%	---	---	
Methyl tert-butyl ether (MTBE)	1.57	---	0.0824	mg/kg dry	50	1.65	ND	95	73-125%	---	---	

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Volatile Organic Compounds by EPA 5035A/8260C**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100478 - EPA 5035A						Soil						
Matrix Spike (8100478-MS1)			Prepared: 10/01/18 11:46 Analyzed: 10/01/18 22:23									
QC Source Sample: SS-23W(4.5) (A8J0020-10)												
Naphthalene	1.45	---	0.165	mg/kg dry	50	1.65	ND	88	62-129%	---	---	
n-Propylbenzene	1.47	---	0.0412	mg/kg dry	50	1.65	ND	89	73-125%	---	---	
Styrene	1.64	---	0.0824	mg/kg dry	50	1.65	ND	99	76-124%	---	---	
1,1,1,2-Tetrachloroethane	1.51	---	0.0412	mg/kg dry	50	1.65	ND	92	78-125%	---	---	
1,1,2,2-Tetrachloroethane	1.63	---	0.0824	mg/kg dry	50	1.65	ND	99	70-124%	---	---	
Tetrachloroethene (PCE)	1.66	---	0.0412	mg/kg dry	50	1.65	ND	101	73-128%	---	---	
Toluene	1.51	---	0.0824	mg/kg dry	50	1.65	ND	92	77-121%	---	---	
1,2,3-Trichlorobenzene	1.57	---	0.412	mg/kg dry	50	1.65	ND	95	66-130%	---	---	
1,2,4-Trichlorobenzene	1.53	---	0.412	mg/kg dry	50	1.65	ND	93	67-129%	---	---	
1,1,1-Trichloroethane	1.53	---	0.0412	mg/kg dry	50	1.65	ND	93	73-130%	---	---	
1,1,2-Trichloroethane	1.62	---	0.0412	mg/kg dry	50	1.65	ND	98	78-121%	---	---	
Trichloroethene (TCE)	1.62	---	0.0412	mg/kg dry	50	1.65	ND	98	77-123%	---	---	
Trichlorofluoromethane	1.97	---	0.165	mg/kg dry	50	1.65	ND	120	62-140%	---	---	
1,2,3-Trichloropropane	1.61	---	0.0824	mg/kg dry	50	1.65	ND	98	73-125%	---	---	
1,2,4-Trimethylbenzene	1.48	---	0.0824	mg/kg dry	50	1.65	ND	90	75-123%	---	---	
1,3,5-Trimethylbenzene	1.52	---	0.0824	mg/kg dry	50	1.65	ND	92	73-124%	---	---	
Vinyl chloride	1.89	---	0.0412	mg/kg dry	50	1.65	ND	115	56-135%	---	---	
m,p-Xylene	3.08	---	0.0824	mg/kg dry	50	3.29	ND	93	77-124%	---	---	
o-Xylene	1.49	---	0.0412	mg/kg dry	50	1.65	ND	91	77-123%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 98 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		96 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		100 %		80-120 %		"						

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**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100559 - EPA 3546						Soil						
Blank (8100559-BLK1)			Prepared: 10/03/18 10:01 Analyzed: 10/03/18 13:13									
EPA 8270D (SIM)												
Acenaphthene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	---	0.00833	mg/kg wet	1	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 83 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		92 %		54-127 %		"						

LCS (8100559-BS1)

Prepared: 10/03/18 10:01 Analyzed: 10/03/18 13:39

EPA 8270D (SIM)

Acenaphthene	0.721	---	0.0100	mg/kg wet	1	0.800	---	90	40-122%	---	---
Acenaphthylene	0.744	---	0.0100	mg/kg wet	1	0.800	---	93	32-132%	---	---
Anthracene	0.706	---	0.0100	mg/kg wet	1	0.800	---	88	47-123%	---	---
Benz(a)anthracene	0.695	---	0.0100	mg/kg wet	1	0.800	---	87	49-126%	---	---
Benzo(a)pyrene	0.705	---	0.0100	mg/kg wet	1	0.800	---	88	45-129%	---	---
Benzo(b)fluoranthene	0.719	---	0.0100	mg/kg wet	1	0.800	---	90	45-132%	---	---
Benzo(k)fluoranthene	0.752	---	0.0100	mg/kg wet	1	0.800	---	94	47-132%	---	---
Benzo(g,h,i)perylene	0.711	---	0.0100	mg/kg wet	1	0.800	---	89	43-134%	---	---
Chrysene	0.729	---	0.0100	mg/kg wet	1	0.800	---	91	50-124%	---	---

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100559 - EPA 3546						Soil						
LCS (8100559-BS1)			Prepared: 10/03/18 10:01		Analyzed: 10/03/18 13:39							
Dibenz(a,h)anthracene	0.747	---	0.0100	mg/kg wet	1	0.800	---	93	45-134%	---	---	
Dibenzofuran	0.712	---	0.0100	mg/kg wet	1	0.800	---	89	44-120%	---	---	
Fluoranthene	0.689	---	0.0100	mg/kg wet	1	0.800	---	86	50-127%	---	---	
Fluorene	0.725	---	0.0100	mg/kg wet	1	0.800	---	91	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	0.728	---	0.0100	mg/kg wet	1	0.800	---	91	45-133%	---	---	
1-Methylnaphthalene	0.674	---	0.0100	mg/kg wet	1	0.800	---	84	40-120%	---	---	
2-Methylnaphthalene	0.684	---	0.0100	mg/kg wet	1	0.800	---	85	38-122%	---	---	
Naphthalene	0.682	---	0.0100	mg/kg wet	1	0.800	---	85	35-123%	---	---	
Phenanthrene	0.705	---	0.0100	mg/kg wet	1	0.800	---	88	50-121%	---	---	
Pyrene	0.695	---	0.0100	mg/kg wet	1	0.800	---	87	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 85 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		88 %		54-127 %		"						
Duplicate (8100559-DUP1)			Prepared: 10/03/18 10:01		Analyzed: 10/03/18 14:32							
QC Source Sample: Non-SDG (A810720-02)												
Acenaphthene	ND	---	1.16	mg/kg dry	10	---	ND	---	---	---	30%	R-02
Acenaphthylene	ND	---	0.518	mg/kg dry	10	---	ND	---	---	---	30%	R-02
Anthracene	ND	---	0.476	mg/kg dry	10	---	ND	---	---	---	30%	R-02
Benz(a)anthracene	ND	---	0.106	mg/kg dry	10	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	---	0.106	mg/kg dry	10	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	---	0.106	mg/kg dry	10	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	---	0.106	mg/kg dry	10	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	---	0.106	mg/kg dry	10	---	ND	---	---	---	30%	
Chrysene	ND	---	0.106	mg/kg dry	10	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	---	0.106	mg/kg dry	10	---	ND	---	---	---	30%	
Dibenzofuran	1.32	---	0.106	mg/kg dry	10	---	1.32	---	---	0.3	30%	
Fluoranthene	0.113	---	0.106	mg/kg dry	10	---	0.107	---	---	6	30%	
Fluorene	2.57	---	0.106	mg/kg dry	10	---	2.57	---	---	0.02	30%	
Indeno(1,2,3-cd)pyrene	ND	---	0.106	mg/kg dry	10	---	ND	---	---	---	30%	
1-Methylnaphthalene	7.46	---	0.106	mg/kg dry	10	---	7.77	---	---	4	30%	
2-Methylnaphthalene	12.4	---	0.106	mg/kg dry	10	---	12.8	---	---	3	30%	
Naphthalene	2.59	---	0.106	mg/kg dry	10	---	2.79	---	---	7	30%	M-02
Phenanthrene	3.32	---	0.106	mg/kg dry	10	---	3.40	---	---	2	30%	
Pyrene	0.747	---	0.106	mg/kg dry	10	---	0.765	---	---	2	30%	M-02

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**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100559 - EPA 3546						Soil						
Duplicate (8100559-DUP1)			Prepared: 10/03/18 10:01		Analyzed: 10/03/18 14:32							
QC Source Sample: Non-SDG (A810720-02)												
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 87 %		Limits: 44-120 %		Dilution: 10x						
p-Terphenyl-d14 (Surr)		100 %		54-127 %		"						
Matrix Spike (8100559-MS1)			Prepared: 10/03/18 10:01		Analyzed: 10/03/18 18:30							
QC Source Sample: Non-SDG (A8J0070-02)												
EPA 8270D (SIM)												
Acenaphthene	0.747	---	0.0113	mg/kg dry	1	0.904	0.0169	81	40-122%	---	---	
Acenaphthylene	0.977	---	0.0113	mg/kg dry	1	0.904	0.0549	102	32-132%	---	---	
Anthracene	0.804	---	0.0113	mg/kg dry	1	0.904	0.0489	84	47-123%	---	---	
Benz(a)anthracene	1.03	---	0.0113	mg/kg dry	1	0.904	0.106	102	49-126%	---	---	
Benzo(a)pyrene	1.76	---	0.0113	mg/kg dry	1	0.904	0.250	167	45-129%	---	---	Q-01
Benzo(b)fluoranthene	1.56	---	0.0113	mg/kg dry	1	0.904	0.238	146	45-132%	---	---	Q-01
Benzo(k)fluoranthene	1.09	---	0.0113	mg/kg dry	1	0.904	0.0697	112	47-132%	---	---	
Benzo(g,h,i)perylene	1.62	---	0.0113	mg/kg dry	1	0.904	0.287	147	43-134%	---	---	Q-01
Chrysene	1.25	---	0.0113	mg/kg dry	1	0.904	0.165	120	50-124%	---	---	
Dibenz(a,h)anthracene	0.764	---	0.0113	mg/kg dry	1	0.904	0.0323	81	45-134%	---	---	
Dibenzofuran	0.721	---	0.0113	mg/kg dry	1	0.904	0.00734	79	44-120%	---	---	
Fluoranthene	1.24	---	0.0113	mg/kg dry	1	0.904	0.286	106	50-127%	---	---	
Fluorene	0.777	---	0.0113	mg/kg dry	1	0.904	0.0496	80	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	1.64	---	0.0113	mg/kg dry	1	0.904	0.235	155	45-133%	---	---	Q-01
1-Methylnaphthalene	0.725	---	0.0113	mg/kg dry	1	0.904	0.0201	78	40-120%	---	---	
2-Methylnaphthalene	0.750	---	0.0113	mg/kg dry	1	0.904	0.0279	80	38-122%	---	---	
Naphthalene	0.821	---	0.0113	mg/kg dry	1	0.904	0.0696	83	35-123%	---	---	
Phenanthrene	1.08	---	0.0113	mg/kg dry	1	0.904	0.332	83	50-121%	---	---	
Pyrene	1.58	---	0.0113	mg/kg dry	1	0.904	0.421	128	47-127%	---	---	Q-01
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 74 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		83 %		54-127 %		"						

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Total Metals by EPA 6020 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100588 - EPA 3051A												
Soil												
Blank (8100588-BLK1)												
Prepared: 10/03/18 14:54 Analyzed: 10/03/18 20:38												
EPA 6020A												
Arsenic	ND	---	0.962	mg/kg wet	10	---	---	---	---	---	---	
Barium	ND	---	0.962	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	---	0.192	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	---	0.962	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	---	0.192	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	---	0.0769	mg/kg wet	10	---	---	---	---	---	---	
Selenium	ND	---	0.962	mg/kg wet	10	---	---	---	---	---	---	B-02
Silver	ND	---	0.192	mg/kg wet	10	---	---	---	---	---	---	
LCS (8100588-BS1)												
Prepared: 10/03/18 14:54 Analyzed: 10/03/18 20:52												
EPA 6020A												
Arsenic	51.2	---	1.00	mg/kg wet	10	50.0	---	102	80-120%	---	---	
Barium	51.2	---	1.00	mg/kg wet	10	50.0	---	102	80-120%	---	---	
Cadmium	50.7	---	0.200	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Chromium	51.3	---	1.00	mg/kg wet	10	50.0	---	103	80-120%	---	---	
Lead	52.2	---	0.200	mg/kg wet	10	50.0	---	104	80-120%	---	---	
Mercury	1.07	---	0.0800	mg/kg wet	10	1.00	---	107	80-120%	---	---	
Selenium	26.0	---	1.00	mg/kg wet	10	25.0	---	104	80-120%	---	---	B-02
Silver	26.1	---	0.200	mg/kg wet	10	25.0	---	105	80-120%	---	---	
Duplicate (8100588-DUP1)												
Prepared: 10/03/18 14:54 Analyzed: 10/03/18 21:01												
QC Source Sample: SS-18E(5.5) (A8J0020-05)												
EPA 6020A												
Arsenic	6.18	---	1.22	mg/kg dry	10	---	6.19	---	---	0.2	40%	
Barium	192	---	1.22	mg/kg dry	10	---	174	---	---	9	40%	
Cadmium	1.31	---	0.244	mg/kg dry	10	---	0.962	---	---	31	40%	
Chromium	42.0	---	1.22	mg/kg dry	10	---	34.7	---	---	19	40%	
Lead	11.4	---	0.244	mg/kg dry	10	---	9.91	---	---	14	40%	
Mercury	ND	---	0.0977	mg/kg dry	10	---	0.0514	---	---	***	40%	Q-05
Selenium	ND	---	1.22	mg/kg dry	10	---	ND	---	---	---	40%	
Silver	ND	---	0.244	mg/kg dry	10	---	ND	---	---	---	40%	

Matrix Spike (8100588-MS1)

Prepared: 10/03/18 14:54 Analyzed: 10/03/18 21:06

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**Apex Laboratories, LLC**

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Tigard, OR 97223
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EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8J0020 - 10 05 18 1121

QUALITY CONTROL (QC) SAMPLE RESULTS**Total Metals by EPA 6020 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100588 - EPA 3051A						Soil						
Matrix Spike (8100588-MS1)			Prepared: 10/03/18 14:54 Analyzed: 10/03/18 21:06									
QC Source Sample: SS-18E(5.5) (A8J0020-05)												
EPA 6020A												
Arsenic	68.1	---	1.22	mg/kg dry	10	61.2	6.19	101	75-125%	---	---	Q-03
Barium	255	---	1.22	mg/kg dry	10	61.2	174	132	75-125%	---	---	
Cadmium	64.0	---	0.245	mg/kg dry	10	61.2	0.962	103	75-125%	---	---	
Chromium	100	---	1.22	mg/kg dry	10	61.2	34.7	107	75-125%	---	---	
Lead	71.2	---	0.245	mg/kg dry	10	61.2	9.91	100	75-125%	---	---	B-02
Mercury	1.26	---	0.0979	mg/kg dry	10	1.22	0.0514	99	75-125%	---	---	
Selenium	30.4	---	1.22	mg/kg dry	10	30.6	ND	99	75-125%	---	---	
Silver	32.1	---	0.245	mg/kg dry	10	30.6	ND	105	75-125%	---	---	

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Project: **River Terrace Area 10**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0020 - 10 05 18 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Percent Dry Weight**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100507 - Total Solids (Dry Weight)							Soil					
Duplicate (8100507-DUP1)			Prepared: 10/02/18 09:41		Analyzed: 10/03/18 09:24							
QC Source Sample: Non-SDG (A8J0001-01)												
% Solids	75.7	---	1.00	% by Weight	1	---	75.7	---	---	0.08	10%	
Duplicate (8100507-DUP2)			Prepared: 10/02/18 09:41		Analyzed: 10/03/18 09:24							
QC Source Sample: Non-SDG (A8J0019-15)												
% Solids	75.4	---	1.00	% by Weight	1	---	75.8	---	---	0.6	10%	
Duplicate (8100507-DUP3)			Prepared: 10/02/18 09:41		Analyzed: 10/03/18 09:24							
QC Source Sample: Non-SDG (A8J0019-30)												
% Solids	92.7	---	1.00	% by Weight	1	---	92.6	---	---	0.1	10%	
Duplicate (8100507-DUP4)			Prepared: 10/02/18 09:41		Analyzed: 10/03/18 09:24							
QC Source Sample: SS-16N(5) (A8J0020-03)												
EPA 8000C												
% Solids	61.8	---	1.00	% by Weight	1	---	64.4	---	---	4	10%	
Duplicate (8100507-DUP5)			Prepared: 10/02/18 09:41		Analyzed: 10/03/18 09:24							
QC Source Sample: SS-26N(5.5) (A8J0020-13)												
EPA 8000C												
% Solids	62.8	---	1.00	% by Weight	1	---	62.4	---	---	0.7	10%	
Duplicate (8100507-DUP6)			Prepared: 10/02/18 19:56		Analyzed: 10/03/18 09:24							
QC Source Sample: Non-SDG (A8J0058-02)												
% Solids	90.9	---	1.00	% by Weight	1	---	90.8	---	---	0.1	10%	
Duplicate (8100507-DUP7)			Prepared: 10/02/18 19:56		Analyzed: 10/03/18 09:24							
QC Source Sample: Non-SDG (A8J0059-15)												
% Solids	70.0	---	1.00	% by Weight	1	---	69.6	---	---	0.6	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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EPA ID: OR01039

GeoDesign, Inc.

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Wilsonville, OR 97070

Project: **River Terrace Area 10**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8J0020 - 10 05 18 1121

SAMPLE PREPARATION INFORMATION**Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8100528</u>							
A8J0020-01	Soil	NWTPH-Dx	10/01/18 10:21	10/02/18 13:43	10.35g/5mL	10g/5mL	0.97
A8J0020-02	Soil	NWTPH-Dx	10/01/18 10:24	10/02/18 13:43	10.88g/5mL	10g/5mL	0.92
A8J0020-03	Soil	NWTPH-Dx	10/01/18 12:55	10/02/18 13:43	10.27g/5mL	10g/5mL	0.97
A8J0020-04	Soil	NWTPH-Dx	10/01/18 10:38	10/02/18 13:43	11.23g/5mL	10g/5mL	0.89
A8J0020-05	Soil	NWTPH-Dx	10/01/18 10:48	10/02/18 13:43	11.32g/5mL	10g/5mL	0.88
A8J0020-06	Soil	NWTPH-Dx	10/01/18 10:55	10/02/18 13:43	10.09g/5mL	10g/5mL	0.99
A8J0020-07	Soil	NWTPH-Dx	10/01/18 11:05	10/02/18 13:43	10.12g/5mL	10g/5mL	0.99
A8J0020-08	Soil	NWTPH-Dx	10/01/18 11:15	10/02/18 13:43	11.59g/5mL	10g/5mL	0.86
A8J0020-09	Soil	NWTPH-Dx	10/01/18 11:30	10/02/18 13:43	11.12g/5mL	10g/5mL	0.90
A8J0020-10	Soil	NWTPH-Dx	10/01/18 11:46	10/02/18 13:43	10.44g/5mL	10g/5mL	0.96
A8J0020-11	Soil	NWTPH-Dx	10/01/18 11:55	10/02/18 13:43	10.5g/5mL	10g/5mL	0.95
A8J0020-12	Soil	NWTPH-Dx	10/01/18 12:19	10/02/18 13:43	10.14g/5mL	10g/5mL	0.99
A8J0020-13	Soil	NWTPH-Dx	10/01/18 13:09	10/02/18 13:43	10.57g/5mL	10g/5mL	0.95

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8091266</u>							
A8J0020-11	Soil	NWTPH-Gx (MS)	10/01/18 11:55	10/01/18 11:55	5.88g/5mL	5g/5mL	0.85
A8J0020-12	Soil	NWTPH-Gx (MS)	10/01/18 12:19	10/01/18 12:19	6.01g/5mL	5g/5mL	0.83
A8J0020-13	Soil	NWTPH-Gx (MS)	10/01/18 13:09	10/01/18 13:09	4.96g/5mL	5g/5mL	1.01
<u>Batch: 8100478</u>							
A8J0020-01	Soil	NWTPH-Gx (MS)	10/01/18 10:21	10/01/18 10:21	5.85g/5mL	5g/5mL	0.86
A8J0020-02	Soil	NWTPH-Gx (MS)	10/01/18 10:24	10/01/18 10:24	6.27g/5mL	5g/5mL	0.80
A8J0020-03	Soil	NWTPH-Gx (MS)	10/01/18 12:55	10/01/18 12:55	5.55g/5mL	5g/5mL	0.90
A8J0020-04	Soil	NWTPH-Gx (MS)	10/01/18 10:38	10/01/18 10:38	5.67g/5mL	5g/5mL	0.88
A8J0020-05	Soil	NWTPH-Gx (MS)	10/01/18 10:48	10/01/18 10:48	5.24g/5mL	5g/5mL	0.95
A8J0020-06	Soil	NWTPH-Gx (MS)	10/01/18 10:55	10/01/18 10:55	6.45g/5mL	5g/5mL	0.78
A8J0020-07	Soil	NWTPH-Gx (MS)	10/01/18 11:05	10/01/18 11:05	6.39g/5mL	5g/5mL	0.78
A8J0020-08	Soil	NWTPH-Gx (MS)	10/01/18 11:15	10/01/18 11:15	6.2g/5mL	5g/5mL	0.81
A8J0020-09	Soil	NWTPH-Gx (MS)	10/01/18 11:30	10/01/18 11:30	5.99g/5mL	5g/5mL	0.84
A8J0020-10	Soil	NWTPH-Gx (MS)	10/01/18 11:46	10/01/18 11:46	5.83g/5mL	5g/5mL	0.86

Volatile Organic Compounds by EPA 5035A/8260C

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Tigard, OR 97223
503-718-2323
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Project: **River Terrace Area 10**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A8J0020 - 10 05 18 1121

SAMPLE PREPARATION INFORMATION**Volatile Organic Compounds by EPA 5035A/8260C****Prep: EPA 5035A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8100478</u>							
A8J0020-05	Soil	5035A/8260C	10/01/18 10:48	10/01/18 10:48	5.24g/5mL	5g/5mL	0.95

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM**Prep: EPA 3546**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8100559</u>							
A8J0020-05	Soil	EPA 8270D (SIM)	10/01/18 10:48	10/03/18 19:20	10.74g/5mL	10g/5mL	0.93

Total Metals by EPA 6020 (ICPMS)**Prep: EPA 3051A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8100588</u>							
A8J0020-05	Soil	EPA 6020A	10/01/18 10:48	10/03/18 14:54	0.501g/50mL	0.5g/50mL	1.00

Percent Dry Weight**Prep: Total Solids (Dry Weight)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 8100507</u>							
A8J0020-01	Soil	EPA 8000C	10/01/18 10:21	10/02/18 09:41			NA
A8J0020-02	Soil	EPA 8000C	10/01/18 10:24	10/02/18 09:41			NA
A8J0020-03	Soil	EPA 8000C	10/01/18 12:55	10/02/18 09:41			NA
A8J0020-04	Soil	EPA 8000C	10/01/18 10:38	10/02/18 09:41			NA
A8J0020-05	Soil	EPA 8000C	10/01/18 10:48	10/02/18 09:41			NA
A8J0020-06	Soil	EPA 8000C	10/01/18 10:55	10/02/18 09:41			NA
A8J0020-07	Soil	EPA 8000C	10/01/18 11:05	10/02/18 09:41			NA
A8J0020-08	Soil	EPA 8000C	10/01/18 11:15	10/02/18 09:41			NA
A8J0020-09	Soil	EPA 8000C	10/01/18 11:30	10/02/18 09:41			NA
A8J0020-10	Soil	EPA 8000C	10/01/18 11:46	10/02/18 09:41			NA
A8J0020-11	Soil	EPA 8000C	10/01/18 11:55	10/02/18 09:41			NA
A8J0020-12	Soil	EPA 8000C	10/01/18 12:19	10/02/18 09:41			NA
A8J0020-13	Soil	EPA 8000C	10/01/18 13:09	10/02/18 09:41			NA

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Project Manager: **Kyle Sattler**

Report ID:

A8J0020 - 10 05 18 1121

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- B-02** Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
- M-02** Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
- Q-01** Spike recovery and/or RPD is outside acceptance limits.
- Q-03** Spike recovery and/or RPD is outside control limits due to the high concentration of analyte present in the sample.
- Q-05** Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
- Q-17** RPD between original and duplicate sample is outside of established control limits.
- Q-42** Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
- R-02** The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
- TEMP** Sample(s) received outside of recommended temperature. See Case Narrative.

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REPORTING NOTES AND CONVENTIONS:**Abbreviations:**

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.

The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).

-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.

-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

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Project Manager: **Kyle Sattler**

Report ID:

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

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Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8J0020 - 10 05 18 1121

LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
<u>All reported analytes are included in Apex Laboratories' current ORELAP scope.</u>					

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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Project: River Terrace Area 10

Project Number: Polygon-145-07

Project Manager: Kyle Sattler

Report ID:

A8J0020 - 10 05 18 1121

APEX LABS **CHAIN OF CUSTODY** Lab # A8J0020 COC 1 of 2 PO# Polygon-145-07

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: GeoDesign Project Mgr: Kyle Sattler Project Name: Polygon-145-07 Project # 1200-Z

Address: 9450 SW Commerce Circle, Wilsonville, OR 97070 Phone: 503-726-3170 Email: ksattler@geodesigninc.com

Sampled by: [Signature]

LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 VOCs Full List	8260 RBDM VOCs	8260 BVOCs	8260 BTEX VOCs	8270 SVOC	8270 SIM PAHs	8082 PCBs	600 TTO	RCA Metals (8)	TCLP Metals (8)	AL, Sb, As, Ba, Be, Cd, Cr, Cu, Fe, Ni, Pb, Hg, Mn, Mo, Ni, K, Se, Ag, Na, TL, V, Zn	TOTAL DISS TCLP	1200-COLS	1200-Z
SS-14 S(2)	10/18	1021	SS	3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SS-15W(2)	10/18	1024	SS	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SS-16N(5)	10/18	1255	SS	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SS-17E(5)	10/18	1038	SS	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SS-18E(5.5)	10/18	1048	SS	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SS-19S(4)	10/18	1055	SS	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SS-20S(4)	10/18	1105	SS	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SS-21S(4.5)	10/18	1115	SS	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SS-22W(5)	10/18	1130	SS	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SS-23W(4.5)	10/18	1146	SS	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Normal Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle) 2 Day 1 Day 3 Day 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS: Contact Kyle Sattler following Geo/Dx analysis regarding follow-up analyses

RECEIVED BY: [Signature] 10/18 Date: 10/18

RELINQUISHED BY: [Signature] 10/18 Date: 10/18

Printed Name: Steen Van der Vliet Printed Name: Steen Van der Vliet Printed Name: Steen Van der Vliet

Company: Apex Company: Apex Company: Apex

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC

12232 S.W. Garden Place

Tigard, OR 97223

503-718-2323

EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle

Wilsonville, OR 97070

Project: River Terrace Area 10

Project Number: Polygon-145-07

Project Manager: Kyle Sattler

Report ID:

A8J0020 - 10 05 18 1121

APEX LABS		CHAIN OF CUSTODY		Lab # <u>A8J0020</u> COC <u>2 of 2</u>	
12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333		Project Name: <u>Polygon-145-07</u>		Project #	
Company: <u>GeoDesign</u>		Project Mgr: <u>Kyle Sattler</u>		PO#	
Address: <u>Stevan Vandecore</u>		Phone: <u>503-718-2323</u>		Email: <u>ksattler@geodesign.com</u>	
Sampled by: <u>Stevan Vandecore</u>		Fax: <u>503-718-0333</u>		Project #	
Site Location: <u>OR</u> WA		Other: <u>WA</u>		Project #	
SAMPLE ID		DATE		TIME	
LAB ID #		DATE		TIME	
1 <u>SS-24W(3)</u>		10/19		1155	
2 <u>SS-25N(5)</u>		12/19		1219	
3 <u>SS-26N(5.5)</u>		12/19		1219	
4					
5					
6					
7					
8					
9					
10					
NORMAL TURN AROUND TIME (TAT) = 10 Business Days		YES		NO	
TAT Requested (circle)		1 Day		3 Day	
4 DAY		5 DAY		Other:	
SAMPLES ARE HELD FOR 30 DAYS		RECEIVED BY:		RECEIVED BY:	
Signature: <u>Stevan Vandecore</u>		Signature: <u>Stevan Vandecore</u>		Signature: <u>Stevan Vandecore</u>	
Printed Name: <u>Stevan Vandecore</u>		Printed Name: <u>Stevan Vandecore</u>		Printed Name: <u>Stevan Vandecore</u>	
Time: <u>1351</u>		Time: <u>1351</u>		Time: <u>1351</u>	
Company: <u>GeoDesign</u>		Company: <u>GeoDesign</u>		Company: <u>GeoDesign</u>	

ANALYSIS REQUEST	
AL, Sb, As, Ba, Be, Cd, Cr, Cu, Fe, Pb, Hg, Mn, Mo, Ni, K, Se, Ag, Na, TL, V, Zn	1200-COLS
TOTAL DISS TC.P	1200-Z
TC.P Metals (8)	
RCRA Metals (8)	
600 TIO	
8082 PCBs	
8270 SIM PAHs	
8270 SVOC	
8260 BTEX VOCs	
8260 HVOCS	
8260 RBDM VOCs	
8260 VOCs Full List	
NWTPH-GX	
NWTPH-DX	
NWTPH-HCID	
# OF CONTAINERS	
MATRIX	
TIME	
DATE	
LAB ID #	

SPECIAL INSTRUCTIONS: See notes on Pg. 1

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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GeoDesign, Inc.

9450 SW Commerce Circle

Wilsonville, OR 97070

Project: River Terrace Area 10Project Number: Polygon-145-07Project Manager: Kyle Sattler

Report ID:

A8J0020 - 10 05 18 1121

APEX LABS COOLER RECEIPT FORM

Client: Geo Design Element WO#: A8 J0020Project/Project #: Polygon-145-07

Delivery info:

Date/Time Received: 10/1/18 @ 1351 By: ASDelivered by: Apex ☒ Client ☒ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐Cooler Inspection Inspected by: AS : 10/1/18 @ 1355Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒Signed/Dated by Client? Yes ☒ No ☐Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	<u>4.1</u>						
Received on Ice? (Y/N)	<u>Y</u>						
Temp. Blanks? (Y/N)	<u>Y</u>						
Ice Type: (Gel/Real/Other)	<u>Real</u>						
Condition:	<u>Good</u>						

Cooler out of temp? (Y/N) N Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection Inspected by: AS : 10/1/18 @ 1510All Samples Intact? Yes ☒ No ☐ Comments: -Bottle Labels/COCs agree? Yes ☐ No ☒ Comments: SS-24W(3) time on
outs. read 11:56. SS-25N(4) time on 8 oz jar +Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments: * SS-19S(4) 1/2 MeOH was received emptyDo VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒Comments: -Water Samples: pH Checked and Appropriate (except VOAs): Yes ☐ No ☐ NA ☒Comments: -Additional Information: 1/2 MeOH was read 12:18. 1/2 MeOH was no info
on out. Matched by process of elimination. SS-26N(5.5)
time on out. read 12:37. SS-16N(2) printed, not listed on ACLabeled by: AS Witness: AS Cooler Inspected by: AS See Project Contact Form ☒sampling DIT on
outs. read 10/1/18 @ 10:31Philip Nerenberg



Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Friday, October 12, 2018

Kyle Sattler
GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

RE: A8J0279 - River Terrace Crossing - Polygon-145-07

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A8J0279, which was received by the laboratory on 10/9/2018 at 3:35:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

Cooler Receipt Info

(See Cooler Receipt Form for Details)

Default Cooler 3.3 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
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EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8J0279 - 10 12 18 1538

ANALYTICAL REPORT FOR SAMPLES**SAMPLE INFORMATION**

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-27(1.5)	A8J0279-01	Soil	10/09/18 13:30	10/09/18 15:35
SS-28(2)	A8J0279-02	Soil	10/09/18 13:38	10/09/18 15:35
SS-29(1.5)	A8J0279-03	Soil	10/09/18 13:49	10/09/18 15:35
SS-30(1)	A8J0279-04	Soil	10/09/18 13:55	10/09/18 15:35
SS-31(3)	A8J0279-05	Soil	10/09/18 14:00	10/09/18 15:35
SS-32(2.5)	A8J0279-06	Soil	10/09/18 14:04	10/09/18 15:35
SS-33(1)	A8J0279-07	Soil	10/09/18 14:19	10/09/18 15:35
SS-34(0.5)	A8J0279-08	Soil	10/09/18 14:25	10/09/18 15:35
SS-35(1)	A8J0279-09	Soil	10/09/18 14:28	10/09/18 15:35
SS-36(1)	A8J0279-10	Soil	10/09/18 14:32	10/09/18 15:35
SS-37(1)	A8J0279-11	Soil	10/09/18 14:35	10/09/18 15:35

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12232 S.W. Garden Place
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503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0279 - 10 12 18 1538****ANALYTICAL SAMPLE RESULTS****Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-27(1.5) (A8J0279-01)				Matrix: Soil		Batch: 8100803		
Diesel	ND	---	25.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 71 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/10/18</i>	<i>NWTPH-Dx</i>		
SS-28(2) (A8J0279-02)				Matrix: Soil		Batch: 8100803		
Diesel	ND	---	25.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 86 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/10/18</i>	<i>NWTPH-Dx</i>		
SS-29(1.5) (A8J0279-03)				Matrix: Soil		Batch: 8100803		
Diesel	ND	---	25.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 88 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/10/18</i>	<i>NWTPH-Dx</i>		
SS-30(1) (A8J0279-04)				Matrix: Soil		Batch: 8100803		
Diesel	ND	---	25.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 82 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/10/18</i>	<i>NWTPH-Dx</i>		
SS-31(3) (A8J0279-05)				Matrix: Soil		Batch: 8100803		
Diesel	ND	---	25.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 87 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/10/18</i>	<i>NWTPH-Dx</i>		
SS-32(2.5) (A8J0279-06)				Matrix: Soil		Batch: 8100803		
Diesel	ND	---	25.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 87 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/10/18</i>	<i>NWTPH-Dx</i>		
SS-33(1) (A8J0279-07)				Matrix: Soil		Batch: 8100803		
Diesel	ND	---	25.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 79 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/10/18</i>	<i>NWTPH-Dx</i>		

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A8J0279 - 10 12 18 1538

ANALYTICAL SAMPLE RESULTS**Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-34(0.5) (A8J0279-08)				Matrix: Soil		Batch: 8100803		
Diesel	ND	---	25.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 91 %		Limits: 50-150 %	1	10/10/18	NWTPH-Dx	
SS-35(1) (A8J0279-09)				Matrix: Soil		Batch: 8100803		
Diesel	ND	---	25.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 88 %		Limits: 50-150 %	1	10/10/18	NWTPH-Dx	
SS-36(1) (A8J0279-10)				Matrix: Soil		Batch: 8100803		
Diesel	ND	---	25.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 74 %		Limits: 50-150 %	1	10/10/18	NWTPH-Dx	
SS-37(1) (A8J0279-11)				Matrix: Soil		Batch: 8100803		
Diesel	ND	---	25.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Oil	ND	---	50.0	mg/kg dry	1	10/10/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 82 %		Limits: 50-150 %	1	10/10/18	NWTPH-Dx	

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**GeoDesign, Inc.**9450 SW Commerce Circle
Wilsonville, OR 97070Project: **River Terrace Crossing**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0279 - 10 12 18 1538****ANALYTICAL SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-27(1.5) (A8J0279-01)				Matrix: Soil		Batch: 8100805		
Gasoline Range Organics	ND	---	7.11	mg/kg dry	50	10/09/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	101 %	Limits: 50-150 %	1	10/09/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			98 %	50-150 %	1	10/09/18	NWTPH-Gx (MS)	
SS-28(2) (A8J0279-02)				Matrix: Soil		Batch: 8100805		
Gasoline Range Organics	ND	---	7.81	mg/kg dry	50	10/09/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	102 %	Limits: 50-150 %	1	10/09/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			99 %	50-150 %	1	10/09/18	NWTPH-Gx (MS)	
SS-29(1.5) (A8J0279-03)				Matrix: Soil		Batch: 8100805		
Gasoline Range Organics	ND	---	6.97	mg/kg dry	50	10/09/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	102 %	Limits: 50-150 %	1	10/09/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			99 %	50-150 %	1	10/09/18	NWTPH-Gx (MS)	
SS-30(1) (A8J0279-04)				Matrix: Soil		Batch: 8100805		
Gasoline Range Organics	ND	---	7.10	mg/kg dry	50	10/09/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	99 %	Limits: 50-150 %	1	10/09/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			98 %	50-150 %	1	10/09/18	NWTPH-Gx (MS)	
SS-31(3) (A8J0279-05)				Matrix: Soil		Batch: 8100805		
Gasoline Range Organics	ND	---	7.07	mg/kg dry	50	10/09/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	99 %	Limits: 50-150 %	1	10/09/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			99 %	50-150 %	1	10/09/18	NWTPH-Gx (MS)	
SS-32(2.5) (A8J0279-06)				Matrix: Soil		Batch: 8100805		
Gasoline Range Organics	ND	---	9.42	mg/kg dry	50	10/10/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	100 %	Limits: 50-150 %	1	10/10/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			98 %	50-150 %	1	10/10/18	NWTPH-Gx (MS)	
SS-33(1) (A8J0279-07)				Matrix: Soil		Batch: 8100805		
Gasoline Range Organics	ND	---	6.92	mg/kg dry	50	10/10/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery:	101 %	Limits: 50-150 %	1	10/10/18	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			98 %	50-150 %	1	10/10/18	NWTPH-Gx (MS)	
SS-34(0.5) (A8J0279-08)				Matrix: Soil		Batch: 8100805		

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12232 S.W. Garden Place
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EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0279 - 10 12 18 1538****ANALYTICAL SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-34(0.5) (A8J0279-08)				Matrix: Soil		Batch: 8100805		
Gasoline Range Organics	ND	---	6.48	mg/kg dry	50	10/10/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 100 %	Limits: 50-150 %	1	10/10/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		98 %	50-150 %	1	10/10/18	NWTPH-Gx (MS)		
SS-35(1) (A8J0279-09)				Matrix: Soil		Batch: 8100805		
Gasoline Range Organics	ND	---	7.45	mg/kg dry	50	10/10/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 99 %	Limits: 50-150 %	1	10/10/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		99 %	50-150 %	1	10/10/18	NWTPH-Gx (MS)		
SS-36(1) (A8J0279-10)				Matrix: Soil		Batch: 8100805		
Gasoline Range Organics	ND	---	7.15	mg/kg dry	50	10/10/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 100 %	Limits: 50-150 %	1	10/10/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		99 %	50-150 %	1	10/10/18	NWTPH-Gx (MS)		
SS-37(1) (A8J0279-11)				Matrix: Soil		Batch: 8100805		
Gasoline Range Organics	ND	---	6.45	mg/kg dry	50	10/10/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		Recovery: 100 %	Limits: 50-150 %	1	10/10/18	NWTPH-Gx (MS)		
1,4-Difluorobenzene (Sur)		99 %	50-150 %	1	10/10/18	NWTPH-Gx (MS)		

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EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0279 - 10 12 18 1538****ANALYTICAL SAMPLE RESULTS****Total Metals by EPA 6020 (ICPMS)**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-27(1.5) (A8J0279-01RE1) Matrix: Soil								
Batch: 8100790								
Cadmium	0.727	---	0.233	mg/kg dry	10	10/10/18	EPA 6020A	
Chromium	28.3	---	1.17	mg/kg dry	10	10/10/18	EPA 6020A	
Lead	8.69	---	0.233	mg/kg dry	10	10/10/18	EPA 6020A	
SS-28(2) (A8J0279-02RE1) Matrix: Soil								
Batch: 8100790								
Cadmium	0.646	---	0.242	mg/kg dry	10	10/10/18	EPA 6020A	
Chromium	31.5	---	1.21	mg/kg dry	10	10/10/18	EPA 6020A	
Lead	10.2	---	0.242	mg/kg dry	10	10/10/18	EPA 6020A	
SS-29(1.5) (A8J0279-03RE1) Matrix: Soil								
Batch: 8100790								
Cadmium	0.554	---	0.255	mg/kg dry	10	10/10/18	EPA 6020A	
Chromium	29.1	---	1.27	mg/kg dry	10	10/10/18	EPA 6020A	
Lead	10.7	---	0.255	mg/kg dry	10	10/10/18	EPA 6020A	
SS-30(1) (A8J0279-04RE1) Matrix: Soil								
Batch: 8100790								
Cadmium	0.633	---	0.234	mg/kg dry	10	10/10/18	EPA 6020A	
Chromium	33.3	---	1.17	mg/kg dry	10	10/10/18	EPA 6020A	
Lead	9.77	---	0.234	mg/kg dry	10	10/10/18	EPA 6020A	
SS-31(3) (A8J0279-05) Matrix: Soil								
Batch: 8100790								
Cadmium	0.537	---	0.227	mg/kg dry	10	10/10/18	EPA 6020A	
Chromium	29.6	---	1.13	mg/kg dry	10	10/10/18	EPA 6020A	
Lead	9.13	---	0.227	mg/kg dry	10	10/10/18	EPA 6020A	
SS-32(2.5) (A8J0279-06) Matrix: Soil								
Batch: 8100790								
Cadmium	0.821	---	0.249	mg/kg dry	10	10/10/18	EPA 6020A	
Chromium	34.3	---	1.24	mg/kg dry	10	10/10/18	EPA 6020A	
Lead	7.86	---	0.249	mg/kg dry	10	10/10/18	EPA 6020A	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.
9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A8J0279 - 10 12 18 1538

ANALYTICAL SAMPLE RESULTS**Total Metals by EPA 6020 (ICPMS)**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-33(1) (A8J0279-07) Matrix: Soil								
Batch: 8100790								
Cadmium	0.545	---	0.247	mg/kg dry	10	10/10/18	EPA 6020A	
Chromium	35.2	---	1.24	mg/kg dry	10	10/10/18	EPA 6020A	
Lead	9.59	---	0.247	mg/kg dry	10	10/10/18	EPA 6020A	
SS-34(0.5) (A8J0279-08) Matrix: Soil								
Batch: 8100790								
Cadmium	0.575	---	0.234	mg/kg dry	10	10/10/18	EPA 6020A	
Chromium	31.5	---	1.17	mg/kg dry	10	10/10/18	EPA 6020A	
Lead	8.39	---	0.234	mg/kg dry	10	10/10/18	EPA 6020A	
SS-35(1) (A8J0279-09) Matrix: Soil								
Batch: 8100790								
Cadmium	0.784	---	0.241	mg/kg dry	10	10/10/18	EPA 6020A	
Chromium	39.1	---	1.20	mg/kg dry	10	10/10/18	EPA 6020A	
Lead	15.8	---	0.241	mg/kg dry	10	10/10/18	EPA 6020A	
SS-36(1) (A8J0279-10) Matrix: Soil								
Batch: 8100790								
Cadmium	0.827	---	0.252	mg/kg dry	10	10/10/18	EPA 6020A	
Chromium	44.7	---	1.26	mg/kg dry	10	10/10/18	EPA 6020A	
Lead	10.9	---	0.252	mg/kg dry	10	10/10/18	EPA 6020A	
SS-37(1) (A8J0279-11) Matrix: Soil								
Batch: 8100790								
Cadmium	0.461	---	0.220	mg/kg dry	10	10/10/18	EPA 6020A	
Chromium	29.8	---	1.10	mg/kg dry	10	10/10/18	EPA 6020A	
Lead	8.66	---	0.220	mg/kg dry	10	10/10/18	EPA 6020A	

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EPA ID: OR01039

GeoDesign, Inc.
9450 SW Commerce Circle
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Project: **River Terrace Crossing**
Project Number: **Polygon-145-07**
Project Manager: **Kyle Sattler**

Report ID:
A8J0279 - 10 12 18 1538

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight								
Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
SS-27(1.5) (A8J0279-01)				Matrix: Soil		Batch: 8100775		
% Solids	85.9	---	1.00	% by Weight	1	10/10/18	EPA 8000C	
SS-28(2) (A8J0279-02)				Matrix: Soil		Batch: 8100775		
% Solids	84.6	---	1.00	% by Weight	1	10/10/18	EPA 8000C	
SS-29(1.5) (A8J0279-03)				Matrix: Soil		Batch: 8100775		
% Solids	81.7	---	1.00	% by Weight	1	10/10/18	EPA 8000C	
SS-30(1) (A8J0279-04)				Matrix: Soil		Batch: 8100775		
% Solids	83.0	---	1.00	% by Weight	1	10/10/18	EPA 8000C	
SS-31(3) (A8J0279-05)				Matrix: Soil		Batch: 8100775		
% Solids	90.2	---	1.00	% by Weight	1	10/10/18	EPA 8000C	
SS-32(2.5) (A8J0279-06)				Matrix: Soil		Batch: 8100775		
% Solids	83.3	---	1.00	% by Weight	1	10/10/18	EPA 8000C	
SS-33(1) (A8J0279-07)				Matrix: Soil		Batch: 8100775		
% Solids	83.6	---	1.00	% by Weight	1	10/10/18	EPA 8000C	
SS-34(0.5) (A8J0279-08)				Matrix: Soil		Batch: 8100775		
% Solids	87.8	---	1.00	% by Weight	1	10/10/18	EPA 8000C	
SS-35(1) (A8J0279-09)				Matrix: Soil		Batch: 8100775		
% Solids	80.4	---	1.00	% by Weight	1	10/10/18	EPA 8000C	
SS-36(1) (A8J0279-10)				Matrix: Soil		Batch: 8100775		
% Solids	79.0	---	1.00	% by Weight	1	10/10/18	EPA 8000C	
SS-37(1) (A8J0279-11)				Matrix: Soil		Batch: 8100775		
% Solids	88.8	---	1.00	% by Weight	1	10/10/18	EPA 8000C	

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0279 - 10 12 18 1538****QUALITY CONTROL (QC) SAMPLE RESULTS****Diesel and/or Oil Hydrocarbons by NWTPH-Dx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100803 - EPA 3546 (Fuels)						Soil						
Blank (8100803-BLK1)			Prepared: 10/09/18 16:48		Analyzed: 10/09/18 22:58							
NWTPH-Dx												
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	50.0	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 103 %		Limits: 50-150 %		Dilution: 1x						
LCS (8100803-BS1)			Prepared: 10/09/18 16:48		Analyzed: 10/09/18 23:20							
NWTPH-Dx												
Diesel	124	---	25.0	mg/kg wet	1	125	---	99	76-115%	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 107 %		Limits: 50-150 %		Dilution: 1x						
Duplicate (8100803-DUP1)			Prepared: 10/09/18 16:48		Analyzed: 10/10/18 00:06							
QC Source Sample: Non-SDG (A8J0113-04)												
Diesel	ND	---	25.0	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	308	---	50.0	mg/kg dry	1	---	302	---	---	2	30%	F-03
Surr: o-Terphenyl (Surr)		Recovery: 99 %		Limits: 50-150 %		Dilution: 1x						
Duplicate (8100803-DUP2)			Prepared: 10/09/18 16:48		Analyzed: 10/10/18 09:59							
QC Source Sample: SS-37(1) (A8J0279-11)												
NWTPH-Dx												
Diesel	ND	---	25.0	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	ND	---	50.0	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)		Recovery: 90 %		Limits: 50-150 %		Dilution: 1x						

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0279 - 10 12 18 1538****QUALITY CONTROL (QC) SAMPLE RESULTS****Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100805 - EPA 5035A						Soil						
Blank (8100805-BLK1)			Prepared: 10/09/18 17:00 Analyzed: 10/09/18 18:38									
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 96 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		97 %		50-150 %		"						
LCS (8100805-BS2)			Prepared: 10/09/18 17:00 Analyzed: 10/09/18 18:11									
NWTPH-Gx (MS)												
Gasoline Range Organics	23.9	---	5.00	mg/kg wet	50	25.0	---	96	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 95 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		98 %		50-150 %		"						
Duplicate (8100805-DUP1)			Prepared: 10/09/18 13:30 Analyzed: 10/09/18 21:47									
QC Source Sample: SS-27(1.5) (A8J0279-01)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	7.37	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 100 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		99 %		50-150 %		"						
Duplicate (8100805-DUP2)			Prepared: 10/09/18 14:32 Analyzed: 10/10/18 02:17									
QC Source Sample: SS-36(1) (A8J0279-10)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	6.78	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 101 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		100 %		50-150 %		"						

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0279 - 10 12 18 1538****QUALITY CONTROL (QC) SAMPLE RESULTS****Total Metals by EPA 6020 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100790 - EPA 3051A												
Soil												
Blank (8100790-BLK1)												
Prepared: 10/09/18 17:02 Analyzed: 10/10/18 01:32												
<u>EPA 6020A</u>												
Chromium	ND	---	0.962	mg/kg wet	10	---	---	---	---	---	---	
Blank (8100790-BLK2)												
Prepared: 10/09/18 17:02 Analyzed: 10/10/18 15:17												
<u>EPA 6020A</u>												
Cadmium	ND	---	0.192	mg/kg wet	10	---	---	---	---	---	---	Q-16
Lead	ND	---	0.192	mg/kg wet	10	---	---	---	---	---	---	Q-16
LCS (8100790-BS2)												
Prepared: 10/09/18 17:02 Analyzed: 10/10/18 15:22												
<u>EPA 6020A</u>												
Cadmium	48.1	---	0.200	mg/kg wet	10	50.0	---	96	80-120%	---	---	Q-16
Chromium	48.6	---	1.00	mg/kg wet	10	50.0	---	97	80-120%	---	---	Q-16
Lead	50.9	---	0.200	mg/kg wet	10	50.0	---	102	80-120%	---	---	Q-16
Duplicate (8100790-DUP2)												
Prepared: 10/09/18 17:02 Analyzed: 10/10/18 16:09												
<u>QC Source Sample: SS-30(1) (A8J0279-04RE1)</u>												
<u>EPA 6020A</u>												
Cadmium	0.580	---	0.238	mg/kg dry	10	---	0.633	---	---	9	40%	Q-16
Chromium	31.4	---	1.19	mg/kg dry	10	---	33.3	---	---	6	40%	Q-16
Lead	10.6	---	0.238	mg/kg dry	10	---	9.77	---	---	8	40%	Q-16
Matrix Spike (8100790-MS2)												
Prepared: 10/09/18 17:02 Analyzed: 10/10/18 02:49												
<u>QC Source Sample: SS-37(1) (A8J0279-11)</u>												
<u>EPA 6020A</u>												
Cadmium	56.6	---	0.226	mg/kg dry	10	56.6	0.461	99	75-125%	---	---	
Chromium	92.9	---	1.13	mg/kg dry	10	56.6	29.8	112	75-125%	---	---	
Lead	60.5	---	0.226	mg/kg dry	10	56.6	8.66	92	75-125%	---	---	
Matrix Spike (8100790-MS3)												
Prepared: 10/09/18 17:02 Analyzed: 10/10/18 16:14												
<u>QC Source Sample: SS-30(1) (A8J0279-04RE1)</u>												
<u>EPA 6020A</u>												
Cadmium	60.7	---	0.250	mg/kg dry	10	62.5	0.633	96	75-125%	---	---	Q-16
Chromium	96.4	---	1.25	mg/kg dry	10	62.5	33.3	101	75-125%	---	---	Q-16

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503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**

Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8J0279 - 10 12 18 1538

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100790 - EPA 3051A							Soil					
Matrix Spike (8100790-MS3)			Prepared: 10/09/18 17:02 Analyzed: 10/10/18 16:14									
QC Source Sample: SS-30(1) (A8J0279-04RE1)												
Lead	71.8	---	0.250	mg/kg dry	10	62.5	9.77	99	75-125%	---	---	Q-16

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Project Manager: **Kyle Sattler**

Report ID:
A8J0279 - 10 12 18 1538

QUALITY CONTROL (QC) SAMPLE RESULTS**Percent Dry Weight**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100775 - Total Solids (Dry Weight)							Soil					
Duplicate (8100775-DUP1)			Prepared: 10/09/18 09:30		Analyzed: 10/10/18 09:27							
QC Source Sample: Non-SDG (A8I0766-04)												
% Solids	99.3	---	1.00	% by Weight	1	---	99.4	---	---	0.1	10%	
Duplicate (8100775-DUP2)			Prepared: 10/09/18 09:30		Analyzed: 10/10/18 09:27							
QC Source Sample: Non-SDG (A8J0137-08)												
% Solids	80.9	---	1.00	% by Weight	1	---	80.7	---	---	0.3	10%	
Duplicate (8100775-DUP3)			Prepared: 10/09/18 09:30		Analyzed: 10/10/18 09:27							
QC Source Sample: Non-SDG (A8J0181-02)												
% Solids	86.3	---	1.00	% by Weight	1	---	87.0	---	---	0.8	10%	
Duplicate (8100775-DUP4)			Prepared: 10/09/18 09:30		Analyzed: 10/10/18 09:27							
QC Source Sample: Non-SDG (A8J0181-10)												
% Solids	76.7	---	1.00	% by Weight	1	---	75.9	---	---	1	10%	
Duplicate (8100775-DUP5)			Prepared: 10/09/18 09:30		Analyzed: 10/10/18 09:27							
QC Source Sample: Non-SDG (A8J0181-15)												
% Solids	76.0	---	1.00	% by Weight	1	---	77.3	---	---	2	10%	
Duplicate (8100775-DUP6)			Prepared: 10/09/18 09:30		Analyzed: 10/10/18 09:27							
QC Source Sample: Non-SDG (A8J0204-06)												
% Solids	84.1	---	1.00	% by Weight	1	---	84.4	---	---	0.3	10%	
Duplicate (8100775-DUP7)			Prepared: 10/09/18 09:30		Analyzed: 10/10/18 09:27							
QC Source Sample: Non-SDG (A8J0204-15)												
% Solids	85.6	---	1.00	% by Weight	1	---	85.8	---	---	0.3	10%	
Duplicate (8100775-DUP8)			Prepared: 10/09/18 09:30		Analyzed: 10/10/18 09:27							
QC Source Sample: Non-SDG (A8J0204-18)												
% Solids	77.6	---	1.00	% by Weight	1	---	77.5	---	---	0.04	10%	

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503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0279 - 10 12 18 1538****QUALITY CONTROL (QC) SAMPLE RESULTS****Percent Dry Weight**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8100775 - Total Solids (Dry Weight)							Soil					
Duplicate (8100775-DUP9)			Prepared: 10/09/18 09:30 Analyzed: 10/10/18 09:27									
<u>QC Source Sample: Non-SDG (A8J0204-44)</u>												
% Solids	82.5	---	1.00	% by Weight	1	---	83.1	---	---	0.7	10%	
Duplicate (8100775-DUPA)			Prepared: 10/09/18 19:58 Analyzed: 10/10/18 09:27									
<u>QC Source Sample: Non-SDG (A8J0258-01)</u>												
% Solids	74.4	---	1.00	% by Weight	1	---	78.1	---	---	5	10%	
Duplicate (8100775-DUPB)			Prepared: 10/09/18 19:58 Analyzed: 10/10/18 09:27									
<u>QC Source Sample: SS-29(1.5) (A8J0279-03)</u>												
<u>EPA 8000C</u>												
% Solids	81.8	---	1.00	% by Weight	1	---	81.7	---	---	0.1	10%	
Duplicate (8100775-DUPC)			Prepared: 10/09/18 19:58 Analyzed: 10/10/18 09:27									
<u>QC Source Sample: Non-SDG (A8J0282-03)</u>												
% Solids	92.2	---	1.00	% by Weight	1	---	92.7	---	---	0.6	10%	
Duplicate (8100775-DUPD)			Prepared: 10/09/18 19:58 Analyzed: 10/10/18 09:27									
<u>QC Source Sample: Non-SDG (A8J0289-04)</u>												
% Solids	93.4	---	1.00	% by Weight	1	---	94.2	---	---	0.8	10%	
Duplicate (8100775-DUPE)			Prepared: 10/09/18 19:58 Analyzed: 10/10/18 09:27									
<u>QC Source Sample: Non-SDG (A8J0291-02)</u>												
% Solids	83.7	---	1.00	% by Weight	1	---	86.0	---	---	3	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0279 - 10 12 18 1538****SAMPLE PREPARATION INFORMATION****Diesel and/or Oil Hydrocarbons by NWTPH-Dx****Prep: EPA 3546 (Fuels)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8100803							
A8J0279-01	Soil	NWTPH-Dx	10/09/18 13:30	10/09/18 16:48	10.57g/5mL	10g/5mL	0.95
A8J0279-02	Soil	NWTPH-Dx	10/09/18 13:38	10/09/18 16:48	11.49g/5mL	10g/5mL	0.87
A8J0279-03	Soil	NWTPH-Dx	10/09/18 13:49	10/09/18 16:48	10.42g/5mL	10g/5mL	0.96
A8J0279-04	Soil	NWTPH-Dx	10/09/18 13:55	10/09/18 16:48	11.07g/5mL	10g/5mL	0.90
A8J0279-05	Soil	NWTPH-Dx	10/09/18 14:00	10/09/18 16:48	10.47g/5mL	10g/5mL	0.96
A8J0279-06	Soil	NWTPH-Dx	10/09/18 14:04	10/09/18 16:48	10.77g/5mL	10g/5mL	0.93
A8J0279-07	Soil	NWTPH-Dx	10/09/18 14:19	10/09/18 16:48	10.92g/5mL	10g/5mL	0.92
A8J0279-08	Soil	NWTPH-Dx	10/09/18 14:25	10/09/18 16:48	10.98g/5mL	10g/5mL	0.91
A8J0279-09	Soil	NWTPH-Dx	10/09/18 14:28	10/09/18 16:48	10.59g/5mL	10g/5mL	0.94
A8J0279-10	Soil	NWTPH-Dx	10/09/18 14:32	10/09/18 16:48	10.47g/5mL	10g/5mL	0.96
A8J0279-11	Soil	NWTPH-Dx	10/09/18 14:35	10/09/18 16:48	10.6g/5mL	10g/5mL	0.94

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**Prep: EPA 5035A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8100805							
A8J0279-01	Soil	NWTPH-Gx (MS)	10/09/18 13:30	10/09/18 13:30	4.63g/5mL	5g/5mL	1.08
A8J0279-02	Soil	NWTPH-Gx (MS)	10/09/18 13:38	10/09/18 13:38	4.28g/5mL	5g/5mL	1.17
A8J0279-03	Soil	NWTPH-Gx (MS)	10/09/18 13:49	10/09/18 13:49	5.23g/5mL	5g/5mL	0.96
A8J0279-04	Soil	NWTPH-Gx (MS)	10/09/18 13:55	10/09/18 13:55	4.96g/5mL	5g/5mL	1.01
A8J0279-05	Soil	NWTPH-Gx (MS)	10/09/18 14:00	10/09/18 14:00	4.25g/5mL	5g/5mL	1.18
A8J0279-06	Soil	NWTPH-Gx (MS)	10/09/18 14:04	10/09/18 14:04	3.57g/5mL	5g/5mL	1.40
A8J0279-07	Soil	NWTPH-Gx (MS)	10/09/18 14:19	10/09/18 14:19	5.03g/5mL	5g/5mL	0.99
A8J0279-08	Soil	NWTPH-Gx (MS)	10/09/18 14:25	10/09/18 14:25	4.92g/5mL	5g/5mL	1.02
A8J0279-09	Soil	NWTPH-Gx (MS)	10/09/18 14:28	10/09/18 14:28	4.99g/5mL	5g/5mL	1.00
A8J0279-10	Soil	NWTPH-Gx (MS)	10/09/18 14:32	10/09/18 14:32	5.44g/5mL	5g/5mL	0.92
A8J0279-11	Soil	NWTPH-Gx (MS)	10/09/18 14:35	10/09/18 14:35	4.84g/5mL	5g/5mL	1.03

Total Metals by EPA 6020 (ICPMS)**Prep: EPA 3051A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8100790							
A8J0279-01RE1	Soil	EPA 6020A	10/09/18 13:30	10/09/18 17:02	0.499g/50mL	0.5g/50mL	1.00
A8J0279-02RE1	Soil	EPA 6020A	10/09/18 13:38	10/09/18 17:02	0.489g/50mL	0.5g/50mL	1.02

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Philip Nerenberg, Lab Director

**Apex Laboratories, LLC**

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

GeoDesign, Inc.

9450 SW Commerce Circle
Wilsonville, OR 97070

Project: **River Terrace Crossing**Project Number: **Polygon-145-07**Project Manager: **Kyle Sattler****Report ID:****A8J0279 - 10 12 18 1538****SAMPLE PREPARATION INFORMATION****Total Metals by EPA 6020 (ICPMS)****Prep: EPA 3051A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A8J0279-03RE1	Soil	EPA 6020A	10/09/18 13:49	10/09/18 17:02	0.48g/50mL	0.5g/50mL	1.04
A8J0279-04RE1	Soil	EPA 6020A	10/09/18 13:55	10/09/18 17:02	0.514g/50mL	0.5g/50mL	0.97
A8J0279-05	Soil	EPA 6020A	10/09/18 14:00	10/09/18 17:02	0.489g/50mL	0.5g/50mL	1.02
A8J0279-06	Soil	EPA 6020A	10/09/18 14:04	10/09/18 17:02	0.483g/50mL	0.5g/50mL	1.04
A8J0279-07	Soil	EPA 6020A	10/09/18 14:19	10/09/18 17:02	0.484g/50mL	0.5g/50mL	1.03
A8J0279-08	Soil	EPA 6020A	10/09/18 14:25	10/09/18 17:02	0.487g/50mL	0.5g/50mL	1.03
A8J0279-09	Soil	EPA 6020A	10/09/18 14:28	10/09/18 17:02	0.517g/50mL	0.5g/50mL	0.97
A8J0279-10	Soil	EPA 6020A	10/09/18 14:32	10/09/18 17:02	0.502g/50mL	0.5g/50mL	1.00
A8J0279-11	Soil	EPA 6020A	10/09/18 14:35	10/09/18 17:02	0.511g/50mL	0.5g/50mL	0.98

Percent Dry Weight**Prep: Total Solids (Dry Weight)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8100775							
A8J0279-01	Soil	EPA 8000C	10/09/18 13:30	10/09/18 19:58			NA
A8J0279-02	Soil	EPA 8000C	10/09/18 13:38	10/09/18 19:58			NA
A8J0279-03	Soil	EPA 8000C	10/09/18 13:49	10/09/18 19:58			NA
A8J0279-04	Soil	EPA 8000C	10/09/18 13:55	10/09/18 19:58			NA
A8J0279-05	Soil	EPA 8000C	10/09/18 14:00	10/09/18 19:58			NA
A8J0279-06	Soil	EPA 8000C	10/09/18 14:04	10/09/18 19:58			NA
A8J0279-07	Soil	EPA 8000C	10/09/18 14:19	10/09/18 19:58			NA
A8J0279-08	Soil	EPA 8000C	10/09/18 14:25	10/09/18 19:58			NA
A8J0279-09	Soil	EPA 8000C	10/09/18 14:28	10/09/18 19:58			NA
A8J0279-10	Soil	EPA 8000C	10/09/18 14:32	10/09/18 19:58			NA
A8J0279-11	Soil	EPA 8000C	10/09/18 14:35	10/09/18 19:58			NA

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Philip Nerenberg, Lab Director

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Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8J0279 - 10 12 18 1538

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- F-03** The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.
- Q-16** Reanalysis of an original Batch QC sample.

Apex Laboratories

A handwritten signature in black ink that reads "Philip Nerenberg".

Philip Nerenberg, Lab Director

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Project Manager: **Kyle Sattler**

Report ID:

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REPORTING NOTES AND CONVENTIONS:**Abbreviations:**

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.

The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")

See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).

-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.

-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

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Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8J0279 - 10 12 18 1538

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

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Philip Nerenberg, Lab Director

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Project Number: **Polygon-145-07**

Project Manager: **Kyle Sattler**

Report ID:

A8J0279 - 10 12 18 1538

LABORATORY ACCREDITATION INFORMATION**TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039**

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
<u>All reported analytes are included in Apex Laboratories' current ORELAP scope.</u>					

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Philip Nerenberg, Lab Director

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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: River Terrace Crossing

Project Number: Polygon-145-07

Project Manager: Kyle Sattler

Report ID:

A8J0279 - 10 12 18 1538

APEX LABS		CHAIN OF CUSTODY		Lab # <u>A8J0279</u> COC <u>1</u> of <u>2</u>	
Company: <u>GeoDesign, Inc.</u>		Project Mgr: <u>Kyle Sattler</u>		Project # <u>Polygon-145-07</u>	
Address: <u>9450 SW Commerce Circle, Wilsonville, OR 97070</u>		Phone: <u>503-7263700</u> Fax: <u>503-718-0333</u>		Email: <u>ksattler@geodesigninc.com</u>	
Sampled by: <u>Steven Vandewatering</u>		Project Name: <u>Polygon-145-07</u>		Project # <u>Polygon-145-07</u>	
Site Location: <u>OR</u> WA		Project Name: <u>Polygon-145-07</u>		Project # <u>Polygon-145-07</u>	
Other: _____		Project Name: <u>Polygon-145-07</u>		Project # <u>Polygon-145-07</u>	
SAMPLE ID		LAB ID #		DATE	
1 <u>SS-27(1.5)</u>		1330		10/18/18	
2 <u>SS-28(2)</u>		1338		10/18/18	
3 <u>SS-29(1.5)</u>		1349		10/18/18	
4 <u>SS-30(1)</u>		1355		10/18/18	
5 <u>SS-31(3)</u>		1400		10/18/18	
6 <u>SS-32(2.5)</u>		1404		10/18/18	
7 <u>SS-33(1)</u>		1419		10/18/18	
8 <u>SS-34(0.5)</u>		1425		10/18/18	
9 <u>SS-35(1)</u>		1428		10/18/18	
10 <u>SS-36(1)</u>		1432		10/18/18	
TIME		DATE		DATE	
MATRIX		DATE		DATE	
# OF CONTAINERS		DATE		DATE	
NWTPH-HCID		DATE		DATE	
NWTPH-DX		DATE		DATE	
NWTPH-GX		DATE		DATE	
8260 VOCs Full List		DATE		DATE	
8260 RBDM VOCs		DATE		DATE	
8260 HVOCs		DATE		DATE	
8260 BTEX VOCs		DATE		DATE	
8270 SVOC		DATE		DATE	
8270 SIM PAHs		DATE		DATE	
8082 PCBs		DATE		DATE	
600 TIO		DATE		DATE	
RCRA Metals (8)		DATE		DATE	
TCLP Metals (8)		DATE		DATE	
Al, Sb, As, Ba, Be, Bi, Br, Cd, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Se, Ag, Na, Tl, V, Zn		DATE		DATE	
TOTAL DISS TCLP		DATE		DATE	
1200-COIS		DATE		DATE	
1200-Z		DATE		DATE	
ANALYSIS REQUEST		DATE		DATE	
SPECIAL INSTRUCTIONS:		DATE		DATE	
Contact Kyle Sattler regarding follow-up analyses once D/Lex/metals completed.		DATE		DATE	
RECEIVED BY:		DATE		DATE	
Signature: <u>[Signature]</u>		DATE		DATE	
Printed Name: <u>Steven Vandewatering</u>		DATE		DATE	
Time: <u>1535</u>		DATE		DATE	
Company: <u>GeoDesign, Inc.</u>		DATE		DATE	
RECEIVED BY:		DATE		DATE	
Signature: <u>[Signature]</u>		DATE		DATE	
Printed Name: <u>Am. opinion</u>		DATE		DATE	
Time: <u>1835</u>		DATE		DATE	
Company: <u>Apex</u>		DATE		DATE	

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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9450 SW Commerce Circle
Wilsonville, OR 97070

Project: River Terrace Crossing
Project Number: Polygon-145-07
Project Manager: Kyle Sattler

Report ID:
A8J0279 - 10 12 18 1538

APEX LABS COOLER RECEIPT FORM

Client: Geo Design Element WO#: A8 J0279

Project/Project #: Polygon -145-07

Delivery info:

Date/Time Received: 10/19/18 @ 1535 By: OB

Delivered by: Apex ☐ Client ☒ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐

Cooler Inspection Inspected by: OB : 10/19/18 @ 1540

Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒

Signed/Dated by Client? Yes ☒ No ☐

Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	<u>3.3</u>						
Received on Ice? (Y/N)	<u>Y</u>						
Temp. Blanks? (Y/N)	<u>Y</u>						
Ice Type: (Gel/Real/Other)	<u>Gel</u>						
Condition:	<u>good</u>						

Cooler out of temp? (Y/N) N Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA NA

Samples Inspection: Inspected by: OB : 10/19/18 @ 1540

All Samples Intact? Yes ☒ No ☐ Comments: _____

Bottle Labels/COCs agree? Yes ☒ No ☐ Comments: _____

Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments: _____

Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments: _____

Water Samples: pH Checked and Appropriate (except VOAs): Yes ☐ No ☒ NA ☒

Comments: _____

Additional Information: _____

Labeled by: OB Witness: SO Cooler Inspected by: OB See Project Contact Form: Y

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Philip Nerenberg

Philip Nerenberg, Lab Director

ANALYTICAL REPORT

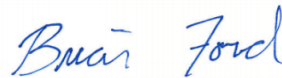
November 19, 2018

GeoDesign Inc. - Wilsonville, OR

Sample Delivery Group: L1043763
Samples Received: 11/13/2018
Project Number: Polygon-145-07
Description: River Terrace East Area 10

Report To: Kyle Sattler
9450 SW Commerce Circle
Ste. 300
Wilsonville, OR 97070

Entire Report Reviewed By:



Brian Ford
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
SG-1 L1043763-01	5	
SG-2 L1043763-02	7	⁴ Cn
SG-3 L1043763-03	9	⁵ Sr
SG-4 L1043763-04	11	
Qc: Quality Control Summary	13	⁶ Qc
Volatile Organic Compounds (MS) by Method TO-15	13	
Gl: Glossary of Terms	18	⁷ Gl
Al: Accreditations & Locations	19	⁸ Al
Sc: Sample Chain of Custody	20	⁹ Sc

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



SG-1 L1043763-01 Air

			Collected by Andre D. DeJonge	Collected date/time 11/09/18 13:45	Received date/time 11/13/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1197746	2	11/16/18 18:43	11/16/18 18:43	AMC

¹ Cp

² Tc

³ Ss

SG-2 L1043763-02 Air

			Collected by Andre D. DeJonge	Collected date/time 11/09/18 13:45	Received date/time 11/13/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1197746	2	11/16/18 19:25	11/16/18 19:25	AMC

⁴ Cn

⁵ Sr

SG-3 L1043763-03 Air

			Collected by Andre D. DeJonge	Collected date/time 11/09/18 15:00	Received date/time 11/13/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1197746	2	11/16/18 20:06	11/16/18 20:06	AMC
Volatile Organic Compounds (MS) by Method TO-15	WG1198277	25	11/17/18 21:40	11/17/18 21:40	MBF

⁶ Qc

⁷ Gl

⁸ Al

SG-4 L1043763-04 Air

			Collected by Andre D. DeJonge	Collected date/time 11/09/18 15:00	Received date/time 11/13/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1197746	2	11/16/18 20:48	11/16/18 20:48	AMC

⁹ Sc

ACCOUNT:

GeoDesign Inc. - Wilsonville, OR

PROJECT:

Polygon-145-07

SDG:

L1043763

DATE/TIME:

11/19/18 09:41

PAGE:

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All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Project Manager

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

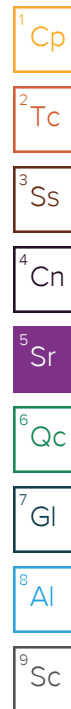


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L1043763

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	51.3	122		2	WG1197746
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1197746
Benzene	71-43-2	78.10	0.400	1.28	1.15	3.67		2	WG1197746
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1197746
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1197746
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1197746
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1197746
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1197746
Carbon disulfide	75-15-0	76.10	0.400	1.24	1.11	3.46		2	WG1197746
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1197746
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1197746
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1197746
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1197746
Chloromethane	74-87-3	50.50	0.400	0.826	0.437	0.902		2	WG1197746
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1197746
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1197746
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1197746
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1197746
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1197746
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1197746
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1197746
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1197746
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1197746
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1197746
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1197746
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1197746
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1197746
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1197746
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1197746
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1197746
Ethanol	64-17-5	46.10	1.26	2.38	27.9	52.6		2	WG1197746
Ethylbenzene	100-41-4	106	0.400	1.73	1.61	6.97		2	WG1197746
4-Ethyltoluene	622-96-8	120	0.400	1.96	0.522	2.56		2	WG1197746
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1197746
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG1197746
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1197746
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1197746
Heptane	142-82-5	100	0.400	1.64	0.890	3.64		2	WG1197746
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1197746
n-Hexane	110-54-3	86.20	0.400	1.41	2.09	7.38		2	WG1197746
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1197746
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1197746
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	3.00	12.3		2	WG1197746
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	63.6	188		2	WG1197746
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1197746
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1197746
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1197746
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1197746
2-Propanol	67-63-0	60.10	2.50	6.15	2.63	6.47		2	WG1197746
Propene	115-07-1	42.10	0.800	1.38	40.7	70.1		2	WG1197746
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1197746
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1197746
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1197746
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	0.402	1.19		2	WG1197746
Toluene	108-88-3	92.10	0.400	1.51	4.02	15.1		2	WG1197746
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1197746



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1197746
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1197746
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1197746
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	2.12	10.4		2	WG1197746
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	0.632	3.10		2	WG1197746
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1197746
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1197746
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1197746
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1197746
m&p-Xylene	1330-20-7	106	0.800	3.47	8.13	35.2		2	WG1197746
o-Xylene	95-47-6	106	0.400	1.73	3.01	13.0		2	WG1197746
TPH (GC/MS) Low Fraction	8006-61-9	101	100	413	279	1150		2	WG1197746
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		93.3				WG1197746

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

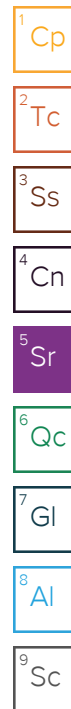
8Al

9Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	49.5	118		2	WG1197746
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1197746
Benzene	71-43-2	78.10	0.400	1.28	0.664	2.12		2	WG1197746
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1197746
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1197746
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1197746
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1197746
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1197746
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1197746
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1197746
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1197746
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1197746
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1197746
Chloromethane	74-87-3	50.50	0.400	0.826	0.471	0.973		2	WG1197746
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1197746
Cyclohexane	110-82-7	84.20	0.400	1.38	0.453	1.56		2	WG1197746
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1197746
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1197746
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1197746
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1197746
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1197746
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1197746
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1197746
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1197746
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1197746
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1197746
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1197746
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1197746
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1197746
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1197746
Ethanol	64-17-5	46.10	1.26	2.38	26.8	50.6		2	WG1197746
Ethylbenzene	100-41-4	106	0.400	1.73	0.460	1.99		2	WG1197746
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1197746
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1197746
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG1197746
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1197746
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1197746
Heptane	142-82-5	100	0.400	1.64	0.448	1.83		2	WG1197746
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1197746
n-Hexane	110-54-3	86.20	0.400	1.41	1.33	4.70		2	WG1197746
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1197746
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1197746
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	3.45	14.1		2	WG1197746
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	76.0	224		2	WG1197746
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1197746
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1197746
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1197746
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1197746
2-Propanol	67-63-0	60.10	2.50	6.15	7.83	19.3		2	WG1197746
Propene	115-07-1	42.10	0.800	1.38	48.0	82.6		2	WG1197746
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1197746
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1197746
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1197746
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1197746
Toluene	108-88-3	92.10	0.400	1.51	2.20	8.29		2	WG1197746
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1197746



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1197746
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1197746
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1197746
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1197746
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1197746
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1197746
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1197746
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1197746
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1197746
m&p-Xylene	1330-20-7	106	0.800	3.47	1.65	7.15		2	WG1197746
o-Xylene	95-47-6	106	0.400	1.73	0.649	2.82		2	WG1197746
TPH (GC/MS) Low Fraction	8006-61-9	101	100	413	127	525	<u>B</u>	2	WG1197746
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		91.5				WG1197746

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

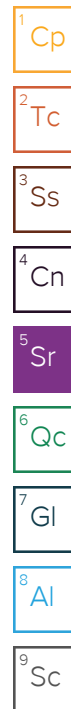
8Al

9Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	72.5	172		2	WG1197746
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1197746
Benzene	71-43-2	78.10	0.400	1.28	1.71	5.45		2	WG1197746
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1197746
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1197746
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1197746
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1197746
1,3-Butadiene	106-99-0	54.10	4.00	8.85	6.93	15.3		2	WG1197746
Carbon disulfide	75-15-0	76.10	0.400	1.24	0.883	2.75		2	WG1197746
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1197746
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1197746
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1197746
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1197746
Chloromethane	74-87-3	50.50	0.400	0.826	0.427	0.881		2	WG1197746
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1197746
Cyclohexane	110-82-7	84.20	0.400	1.38	0.415	1.43		2	WG1197746
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1197746
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1197746
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1197746
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1197746
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1197746
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1197746
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1197746
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1197746
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1197746
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1197746
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1197746
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1197746
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1197746
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1197746
Ethanol	64-17-5	46.10	1.26	2.38	31.7	59.7		2	WG1197746
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1197746
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1197746
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1197746
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG1197746
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1197746
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1197746
Heptane	142-82-5	100	0.400	1.64	1.60	6.54		2	WG1197746
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1197746
n-Hexane	110-54-3	86.20	0.400	1.41	7.41	26.1		2	WG1197746
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1197746
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1197746
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1197746
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	48.3	143		2	WG1197746
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1197746
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1197746
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1197746
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1197746
2-Propanol	67-63-0	60.10	2.50	6.15	53.5	132		2	WG1197746
Propene	115-07-1	42.10	10.0	17.2	432	743		25	WG1198277
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1197746
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1197746
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1197746
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	0.948	2.80		2	WG1197746
Toluene	108-88-3	92.10	0.400	1.51	1.97	7.42		2	WG1197746
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1197746



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1197746
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1197746
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1197746
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1197746
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1197746
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	2.11	9.86		2	WG1197746
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1197746
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1197746
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1197746
m&p-Xylene	1330-20-7	106	0.800	3.47	1.00	4.35		2	WG1197746
o-Xylene	95-47-6	106	0.400	1.73	ND	1.73		2	WG1197746
TPH (GC/MS) Low Fraction	8006-61-9	101	100	413	224	926		2	WG1197746
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		91.5				WG1197746
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		94.2				WG1198277

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Cp

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Tc

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Ss

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Cn

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Sr

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Qc

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Gl

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Al

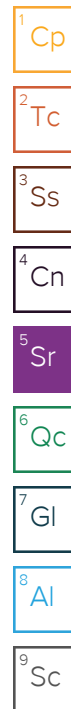
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Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	37.1	88.1		2	WG1197746
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1197746
Benzene	71-43-2	78.10	0.400	1.28	1.03	3.31		2	WG1197746
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1197746
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1197746
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1197746
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1197746
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1197746
Carbon disulfide	75-15-0	76.10	0.400	1.24	0.608	1.89		2	WG1197746
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1197746
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1197746
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1197746
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1197746
Chloromethane	74-87-3	50.50	0.400	0.826	0.434	0.897		2	WG1197746
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1197746
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1197746
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1197746
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1197746
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1197746
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1197746
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1197746
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1197746
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1197746
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1197746
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1197746
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1197746
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1197746
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1197746
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1197746
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1197746
Ethanol	64-17-5	46.10	1.26	2.38	24.4	46.0		2	WG1197746
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1197746
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1197746
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1197746
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG1197746
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1197746
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1197746
Heptane	142-82-5	100	0.400	1.64	0.941	3.85		2	WG1197746
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1197746
n-Hexane	110-54-3	86.20	0.400	1.41	3.23	11.4		2	WG1197746
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1197746
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1197746
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	2.62	10.7		2	WG1197746
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	55.0	162		2	WG1197746
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1197746
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1197746
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1197746
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1197746
2-Propanol	67-63-0	60.10	2.50	6.15	90.9	223		2	WG1197746
Propene	115-07-1	42.10	0.800	1.38	54.9	94.6		2	WG1197746
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1197746
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1197746
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1197746
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	0.514	1.52		2	WG1197746
Toluene	108-88-3	92.10	0.400	1.51	1.58	5.96		2	WG1197746
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1197746



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1197746
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1197746
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1197746
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1197746
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1197746
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	0.667	3.12		2	WG1197746
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1197746
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1197746
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1197746
m&p-Xylene	1330-20-7	106	0.800	3.47	0.837	3.63		2	WG1197746
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1197746
TPH (GC/MS) Low Fraction	8006-61-9	101	100	413	153	632	<u>B</u>	2	WG1197746
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		91.1				WG1197746

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3360721-3 11/16/18 10:04

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorotoluene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

1

Cp

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Tc

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Ss

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Cn

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Sr

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Qc

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Gl

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Al

9

Sc



Method Blank (MB)

(MB) R3360721-3 11/16/18 10:04

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0465	0.200
Methyl Butyl Ketone	U		0.0682	1.25
2-Butanone (MEK)	U		0.0493	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25
Methyl Methacrylate	U		0.0773	0.200
MTBE	U		0.0505	0.200
Naphthalene	U		0.154	0.630
2-Propanol	U		0.0882	1.25
Propene	U		0.0932	0.400
Styrene	U		0.0465	0.200
1,1,2,2-Tetrachloroethane	U		0.0576	0.200
Tetrachloroethylene	U		0.0497	0.200
Tetrahydrofuran	U		0.0508	0.200
Toluene	U		0.0499	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0665	0.200
1,1,2-Trichloroethane	U		0.0287	0.200
Trichloroethylene	U		0.0545	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
2,2,4-Trimethylpentane	U		0.0456	0.200
Vinyl chloride	U		0.0457	0.200
Vinyl Bromide	U		0.0727	0.200
Vinyl acetate	U		0.0639	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
Ethanol	U		0.0832	0.630
TPH (GC/MS) Low Fraction	9.10	U	6.91	50.0
(S) 1,4-Bromofluorobenzene	93.6			60.0-140

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360721-1 11/16/18 08:41 • (LCSD) R3360721-2 11/16/18 09:22

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	3.49	3.44	93.2	91.7	55.0-148			1.59	25
Propene	3.75	3.30	3.24	87.9	86.3	64.0-144			1.87	25
Dichlorodifluoromethane	3.75	3.69	3.71	98.5	99.0	64.0-139			0.528	25
1,2-Dichlorotetrafluoroethane	3.75	4.12	4.10	110	109	70.0-130			0.537	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360721-1 11/16/18 08:41 • (LCSD) R3360721-2 11/16/18 09:22

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloromethane	3.75	3.57	3.52	95.1	93.9	70.0-130			1.30	25
Vinyl chloride	3.75	3.70	3.63	98.8	96.9	70.0-130			1.95	25
1,3-Butadiene	3.75	3.28	3.28	87.4	87.6	70.0-130			0.154	25
Bromomethane	3.75	3.80	3.77	101	101	70.0-130			0.751	25
Chloroethane	3.75	3.74	3.72	99.8	99.1	70.0-130			0.704	25
Trichlorofluoromethane	3.75	3.74	3.72	99.6	99.2	70.0-130			0.408	25
1,1,2-Trichlorotrifluoroethane	3.75	3.89	3.82	104	102	70.0-130			1.76	25
1,1-Dichloroethene	3.75	3.73	3.73	99.4	99.5	70.0-130			0.140	25
1,1-Dichloroethane	3.75	3.74	3.69	99.9	98.4	70.0-130			1.45	25
Acetone	3.75	3.67	3.67	97.7	97.8	70.0-130			0.0489	25
2-Propanol	3.75	3.55	3.48	94.8	92.9	70.0-139			2.01	25
Carbon disulfide	3.75	3.88	3.78	103	101	70.0-130			2.45	25
Methylene Chloride	3.75	3.43	3.33	91.6	88.7	70.0-130			3.18	25
MTBE	3.75	3.71	3.67	98.9	97.8	70.0-130			1.11	25
trans-1,2-Dichloroethene	3.75	3.75	3.66	100	97.6	70.0-130			2.57	25
n-Hexane	3.75	3.73	3.70	99.6	98.6	70.0-130			0.994	25
Vinyl acetate	3.75	3.62	3.54	96.6	94.4	70.0-130			2.26	25
Methyl Ethyl Ketone	3.75	3.93	3.77	105	101	70.0-130			4.08	25
cis-1,2-Dichloroethene	3.75	3.91	3.93	104	105	70.0-130			0.455	25
Chloroform	3.75	3.74	3.69	99.8	98.3	70.0-130			1.50	25
Cyclohexane	3.75	3.87	3.85	103	103	70.0-130			0.387	25
1,1,1-Trichloroethane	3.75	3.82	3.74	102	99.7	70.0-130			2.25	25
Carbon tetrachloride	3.75	3.80	3.82	101	102	70.0-130			0.455	25
Benzene	3.75	3.79	3.77	101	101	70.0-130			0.462	25
1,2-Dichloroethane	3.75	3.68	3.66	98.1	97.6	70.0-130			0.476	25
Heptane	3.75	3.53	3.51	94.1	93.6	70.0-130			0.563	25
Trichloroethylene	3.75	3.85	3.86	103	103	70.0-130			0.302	25
1,2-Dichloropropane	3.75	3.79	3.71	101	99.0	70.0-130			2.16	25
1,4-Dioxane	3.75	3.96	3.96	106	106	70.0-140			0.188	25
Bromodichloromethane	3.75	3.85	3.80	103	101	70.0-130			1.28	25
cis-1,3-Dichloropropene	3.75	3.85	3.82	103	102	70.0-130			0.967	25
4-Methyl-2-pentanone (MIBK)	3.75	3.55	3.45	94.6	92.1	70.0-139			2.74	25
Toluene	3.75	3.89	3.84	104	102	70.0-130			1.32	25
trans-1,3-Dichloropropene	3.75	3.80	3.82	101	102	70.0-130			0.605	25
1,1,2-Trichloroethane	3.75	3.90	3.83	104	102	70.0-130			1.89	25
Tetrachloroethylene	3.75	4.04	4.07	108	108	70.0-130			0.560	25
Methyl Butyl Ketone	3.75	3.69	3.62	98.3	96.6	70.0-149			1.81	25
Dibromochloromethane	3.75	4.00	3.95	107	105	70.0-130			1.40	25
1,2-Dibromoethane	3.75	3.92	3.94	105	105	70.0-130			0.283	25
Chlorobenzene	3.75	3.96	3.88	105	103	70.0-130			2.00	25

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Cp

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Tc

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Ss

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Cn

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Sr

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Qc

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Gl

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Al

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Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360721-1 11/16/18 08:41 • (LCSD) R3360721-2 11/16/18 09:22

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	3.75	3.88	3.82	103	102	70.0-130			1.49	25
m&p-Xylene	7.50	7.73	7.64	103	102	70.0-130			1.18	25
o-Xylene	3.75	3.89	3.84	104	102	70.0-130			1.32	25
Styrene	3.75	4.09	4.06	109	108	70.0-130			0.650	25
Bromoform	3.75	4.21	4.17	112	111	70.0-130			0.797	25
1,1,2,2-Tetrachloroethane	3.75	3.84	3.82	102	102	70.0-130			0.426	25
4-Ethyltoluene	3.75	3.84	3.82	102	102	70.0-130			0.563	25
1,3,5-Trimethylbenzene	3.75	3.86	3.84	103	102	70.0-130			0.501	25
1,2,4-Trimethylbenzene	3.75	3.81	3.75	102	100	70.0-130			1.60	25
1,3-Dichlorobenzene	3.75	3.96	3.93	106	105	70.0-130			0.658	25
1,4-Dichlorobenzene	3.75	3.95	3.91	105	104	70.0-130			1.13	25
Benzyl Chloride	3.75	3.90	3.83	104	102	70.0-152			1.84	25
1,2-Dichlorobenzene	3.75	3.92	3.84	105	102	70.0-130			2.18	25
1,2,4-Trichlorobenzene	3.75	4.41	4.40	118	117	70.0-160			0.226	25
Hexachloro-1,3-butadiene	3.75	4.09	4.10	109	109	70.0-151			0.274	25
Naphthalene	3.75	4.33	4.29	115	114	70.0-159			0.764	25
TPH (GC/MS) Low Fraction	203	203	200	100	98.9	70.0-130			1.16	25
Allyl Chloride	3.75	3.58	4.04	95.4	108	70.0-130			12.2	25
2-Chlorotoluene	3.75	3.96	3.92	106	105	70.0-130			0.843	25
Methyl Methacrylate	3.75	3.79	3.86	101	103	70.0-130			1.66	25
Tetrahydrofuran	3.75	3.43	3.36	91.4	89.6	70.0-137			2.05	25
2,2,4-Trimethylpentane	3.75	3.73	3.69	99.6	98.3	70.0-130			1.33	25
Vinyl Bromide	3.75	3.84	3.91	102	104	70.0-130			1.83	25
Isopropylbenzene	3.75	3.90	3.85	104	103	70.0-130			1.26	25
(S) 1,4-Bromofluorobenzene				97.1	96.0	60.0-140				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3361077-3 11/17/18 10:13

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ppbv		ppbv	ppbv
Propene	U		0.0932	0.400
(S) 1,4-Bromofluorobenzene	94.7			60.0-140

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3361077-1 11/17/18 08:40 • (LCSD) R3361077-2 11/17/18 09:26

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ppbv	ppbv	ppbv	%	%	%			%	%
Propene	3.75	4.78	4.72	127	126	64.0-144			1.25	25
(S) 1,4-Bromofluorobenzene				97.0	97.1	60.0-140				



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.

¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

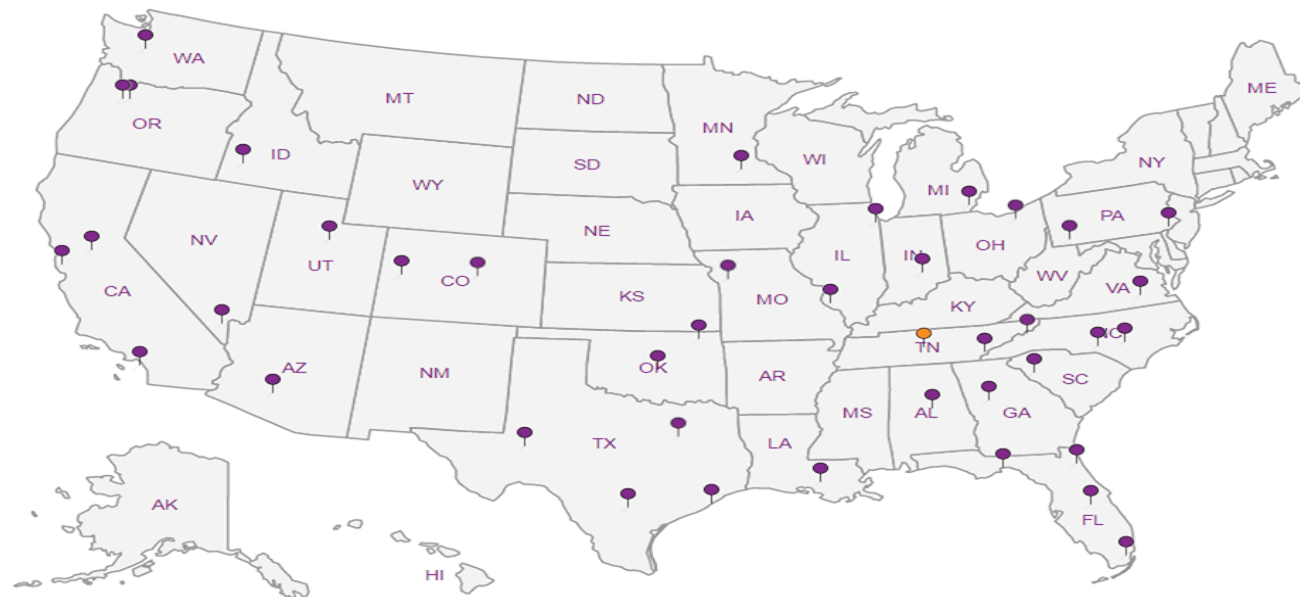
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

APPENDIX H



Customer Summary Report

Hillsboro Landfill - S03305 (USA) 08/01/2018 12:00 AM - 02/14/2019 11:59 PM Operation Type: All

Customer: BDZ CONSTRUCTION (BDZ CONSTRUCTION) - Ticket Type: All - Customer Type: All - PMT Category: All - Profile:

Ticket Date	Ticket ID	Customer	Generator	Profile	Truck	Material	Tons
9/28/2018	1500957	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	31-SOLO	Cont Soil Pet-RGC-Tons	20.41
9/28/2018	1500958	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	30	Cont Soil Pet-RGC-Tons	17.85
9/28/2018	1500999	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	30	Cont Soil Pet-RGC-Tons	14.57
9/28/2018	1501038	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	30	Cont Soil Pet-RGC-Tons	14.10
9/28/2018	1501064	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	30	Cont Soil Pet-RGC-Tons	20.84
10/9/2018	1502128	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	813-SOLO	Cont Soil Pet-RGC-Tons	18.37
10/9/2018	1502147	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	813-SOLO	Cont Soil Pet-RGC-Tons	18.76
10/9/2018	1502172	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	813-SOLO	Cont Soil Pet-RGC-Tons	21.93
10/9/2018	1502191	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	813-SOLO	Cont Soil Pet-RGC-Tons	20.83
10/9/2018	1502212	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	813-SOLO	Cont Soil Pet-RGC-Tons	18.72
10/9/2018	1502223	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	813-SOLO	Cont Soil Pet-RGC-Tons	20.94
10/22/2018	1503856	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	26	Cont Soil Pet-RGC-Tons	12.23
10/22/2018	1503949	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	27-SOLO	Cont Soil Pet-RGC-Tons	14.61
10/23/2018	1504108	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	27-SOLO	Cont Soil Pet-RGC-Tons	14.02
10/24/2018	1504259	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	2	Cont Soil Pet-RGC-Tons	14.28
10/24/2018	1504290	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	2	Cont Soil Pet-RGC-Tons	12.81
10/24/2018	1504306	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	2	Cont Soil Pet-RGC-Tons	13.33
10/25/2018	1504345	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	27-SOLO	Cont Soil Pet-RGC-Tons	10.59
10/25/2018	1504397	BDZ CONSTRUCTION	OR-BDZ CONSTRUCTION VARIOUS	128494OR	27-SOLO	Cont Soil Pet-RGC-Tons	14.81
TOTALS:	19 loads						314.00

