

HEATING OIL TANK DECOMMISSIONING AND GENERIC REMEDY CLOSURE REPORT

**BOYS AND GIRLS CLUB
9330 SE HAROLD STREET
PORTLAND, OREGON 97266**

ODEQ LUST File #26-11-0916



Prepared on behalf of:

Portland Development Commission

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Decommissioning Service Provider License Number: 16485

Expiration Date: March 15, 2010

HOT Service Provider License Number: 16317

Expiration Date: March 15, 2010

Date: October 13, 2011

Project Number: 319-11009-01

HEATING OIL TANK DECOMMISSIONING AND RISK-BASED CLOSURE REPORT

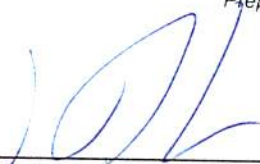
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Portland Development Commission

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene and total xylenes
Client	Portland Development Commission
COIs	constituents of interest
COPCs	constituents of potential concern
DRO	diesel-range organics
ENW	EVREN Northwest, Inc.
EPA	U.S. Environmental Protection Agency
HOT	heating oil tank
µg/L	micrograms per Liter
mg/Kg	milligrams per Kilogram
OARs	Oregon Administrative Rules
ODEQ	Oregon Department of Environmental Quality
ORRCO	Oil Re-Refining Company
OVM	organic vapor monitor
PAHs	polynuclear aromatic hydrocarbons
RBCs	risk-based concentrations
RBDM	<i>Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites</i> , ODEQ 2003 guidance document
RRO	residual (oil)-range organics
SOW	scope of work
TPH	total petroleum hydrocarbons
Varchan/VEC	Varchan Environmental Construction
VOA	volatile organic analysis
VOCs	volatile organic constituents

EXECUTIVE SUMMARY

This report documents the decommissioning of an abandoned heating oil underground storage tank by removal, removal of accessible impacted soil with disposal at a permitted landfill facility, and completion of a generic remedy closure of residual impacted soils at the Portland Development Commission's Boys and Girls Club facility at 9330 SE Harold Street, Portland, Oregon. Varchan Environmental Construction and EVREN Northwest Inc. collaborated on the project.

The property is 2.11 acres, and the area in which the tank was located was in a sports field (ball park). However, historically the tank was associated with a single-family residence. On September 1, 2011, Varchan Environmental Construction decommissioned the tank by removal according to national standards of practice. All waste was appropriately disposed or recycled.

After tank removal, accessible petroleum-impacted soil was excavated. An approximate total of 30 cubic yards of accessible impacted soils were removed by Varchan Environmental Construction and confirmation samples were collected from the sidewalls and floor of the excavation. While analysis was being performed, Parametrix (another consultant) excavated additional soils from the bottom of the excavation, and collected floor confirmation samples. The final excavation was completed at 17 feet depth, with a residual maximum concentration of 1,970 milligrams per Kilogram (mg/Kg) diesel measured at 17 feet below ground surface at the tank location. As a result, the previous sidewall samples were no longer sufficient to delineate the residual impacted soils. Therefore, a push probe drill rig was mobilized to the site to collect additional delineation samples.

The soil borings completed showed that the diesel soil plume attenuated to below 500 mg/Kg at 20 feet depth below the former tank location. Additional borings were completed around the former tank location to demonstrate that the impacts were limited to the immediate area of the former tank location. The vertical delineation showed the plume attenuated to 340 mg/Kg at 20 feet depth at the tank location. All delineation samples collected from the other borings were "nondetect" for diesel impacts. The remaining impacted soils were conservatively estimated at 48 cubic yards and contain impacts at up to 1,970-mg/Kg diesel.

Where Soil Matrix Cleanup Standards are not met, ODEQ requires closure of the site under a risk-based approach described in guidance issued in 2003, entitled *Risk Based Decision Making for the Remediation of Petroleum-Contaminated Sites (RBDM)*. However, for sites where heating fuel concentrations in soil are relatively low, impacts to ground water are unlikely, and volume of impacted soil is small, ODEQ allows file closure under its Heating Oil Tank Generic Remedy guidance document. After the tank decommissioning and accessible impacted soil removal, the site meets all the criteria for a Generic Remedy Cleanup Alternative 1 closure.

A Certificate of Heating Oil Tank Decommissioning and Cleanup has been completed for the project. Copies of this report and certificate were submitted to the Oregon Department of Environmental Quality with appropriate fees to close the file concerning the release with the agency.

1.0 INTRODUCTION

This report documents an underground heating oil tank (HOT) decommissioning, impacted soil removal, and generic remedy closure of residual petroleum-impacted soil at the Boys and Girls Club, located at 9330 SE Harold Street in Portland, Oregon (Figure 1; subject site). The tank was located in a portion of the property developed as a sports field (ball park). Varchan Environmental Construction (Varchan) requested EVREN Northwest, Inc. (ENW) to collaborate on the project.

1.1 Purpose

HOT decommissioning, impacted soil removal, and generic remedy closure were conducted with the objective of bringing the site to regulatory closure.

1.2 Scope

The scope of work (SOW) for the project was as follows:

- Develop a work plan for the site.
- Decommission the underground HOT according to industry standards.
- Remove and dispose off-site accessible impacted soil.
- Collect soil samples to characterize and delineate residual petroleum-related impacts.
- Submit soil samples to an independent laboratory for chemical analyses by selected analytical methods.
- Evaluate analytical results with respect to the Oregon Soil Matrix Cleanup Regulations and the Oregon Department of Environmental Quality's (ODEQ's) *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites (RBDM) and Heating Oil Tank Generic Remedy* guidance documents.
- Prepare a report to ODEQ documenting findings and analytical data.

The following sections of this report provide a site description, describe methods and procedures used, present findings, discuss generic remedy criteria, and then present conclusions and recommendations.

2.0 SITE SETTING

2.1 Description and Location

The subject property is located within the City of Portland at 9330 SE Harold Street (Figures 1 and 2). The site is currently developed with a boys and girls club facility, but the tank was discovered in an area of the property developed as a sports field. However, historically the tank was associated with a single-family dwelling.

2.2 Topography

The United States Geological Survey Portland 7.5-minute topographic map shows that the site is located at an approximate elevation of approximately 209 feet above mean sea level. The site slopes very gently to the southeast.

2.3 Geologic Setting

The site is located in the eastern portion of the City of Portland. Geologic mapping of the area shows the site is located on coarse-grained flood deposits of the late Pleistocene Missoula Floods.¹

Borings completed in the vicinity of the tank encountered sandy gravels from the ground surface to 20 feet depth. Logs for the borings are presented in Appendix A.

2.4 Hydrogeologic Setting

There are no creeks, springs, ponds, wetlands, seeps, or ephemeral drainages in the vicinity of the site. Johnson Creek is located 3,300 feet to the southeast. The site is located outside the 100 year flood plain.

US Geological Survey data indicates that the regional groundwater table below the site is at approximately 52 feet below ground surface. However a monitoring well (Mult 63388) installed at nearby Lents Park encountered first water at 108 feet depth, with a static water level of 94.5 feet depth. Another nearby monitoring well (Mult 79714) encountered water at 30 feet below ground surface (see Appendix B).

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¹ Madin, I.P., 1990, Earthquake-hazard geology maps of the Portland Metropolitan Area, Oregon: Oregon Department of Geology and Mineral Industries, Open-file Report O-90-2, 1:24,000 maps with text.

3.0 METHODS AND PROCEDURES

All information generated for this project was developed with the following specific objectives:

- To conduct an adequate and cost-effective investigation for the purposes of assessing impacts to the site, and in providing information that can be used by the Client in future planning for the site.
- To perform the investigation in a manner safe for technical personnel on-site, and that would result in minimal, if any, impacts to the property.
- To document information and data generated under this statement of work that is valid for the intended use.

The remainder of this section describes the methods and procedures used for this investigation. A photographic log of all the field work is presented in Appendix C. Findings are presented in Section 4.

3.1 Heating Oil Tank Decommissioning

Decommissioning of the HOT system was based on the procedures referenced in the following documents:

- American Petroleum Institute (API) 2015, "Cleaning Petroleum Storage Tanks," 1994.
- API 1604, "Closure of Underground Petroleum Storage Tanks," 1996
- Oregon Administrative Rules, Division 150
- ODEQ's "Cleanup Rules for Leaking Petroleum UST Systems," November 1998.

The decommissioning was performed on September 1, 2011, as follows:

- Material over the tank was excavated to expose its top.
- The supply and return lines were drained back into the tank.
- The tank was pumped of materials and then pressure cleaned by ORRICO.
- After cleaning and removal, the HOT was placed in a trailer for transport to an off-site recycling facility.

Inspection of the removed tank indicated that it had holes in its bottom.

ENW completed the Heating Oil Tank Services Service Provider Report Certification and Cleanup Checklist for the site (Appendix D).

3.2 Petroleum-Impacted Soil Removal

Following tank removal, accessible impacted soils were excavated to the extent possible with a small trackhoe. Impacted soils were directly loaded into dump trucks for offsite disposal at Hillsboro Landfill. However, some impacted soil was left-in-place below the excavation floor at 13

feet depth. On September 6 and again on September 8, 2011, Parametrix (also working on the Boys and Girls Club site for PDC) excavated additional soils from the bottom of the tank excavation. The final excavation was completed at 17 feet below ground surface.

3.3 Soil Assessment and Delineation Sampling

Soil samples from the sidewalls and excavation floor were transferred from freshly excavated soil in the excavator bucket directly into laboratory supplied jars with clean Nitrile gloves. The jars were promptly sealed with minimal interior headspace and labeled with distinctive designations. The samples were immediately placed in a cooler with ice and remained in cooled storage until delivered to a laboratory for analysis. Additionally selected soils were collected by EPA Method 5035A. Locations are shown in Figure 3.

As a result of the deepening of the tank excavation by Parametrix, additional delineation was required after the excavation had been backfilled. VEC/ENW contracted with Cascade Drilling to provide a Geoprobe rig with operators to collect delineation samples around and under the former tank excavation. All drilling equipment was pressure cleaned before and after each boring to prevent cross-contamination. Soil cores were recovered within a cellulose acetate butyrate sleeve inserted into a 2.25-inch stainless steel core barrel. The core barrel was pushed and driven to a maximum depth of 20 feet bgs. Soil samples were logged by ENW staff under the supervision of an Oregon Registered Geologist. Selected samples were immediately transferred from the core sleeve directly into laboratory supplied jars with clean Nitrile gloves. The jars were promptly sealed with minimal interior headspace and labeled with distinctive designations. The samples were immediately placed in a cooler with ice and remained in cooled storage until delivered to a laboratory for analysis.

Chain of custody protocols were implemented for all samples.

3.4 Analytical Methods

All samples were analyzed by Friedman & Bruya, Inc., of Seattle, Washington. Since the release was from a heating oil tank, soil samples were analyzed by NWTPH-Dx [Northwest analytical method for quantification of diesel-range extended total petroleum hydrocarbons (TPH)]. Selected samples were also analyzed for the VOCs benzene, toluene, ethylbenzene and total xylenes (BTEX) and naphthalene. Additionally Parametrix analyzed one sample for polynuclear aromatic hydrocarbons (PAHs). The sampling analytical plan is outlined in Table 3-1, below.

Table 3-1. Analytical Methods

Analytical Method	Constituents	Soil
NWTPH-Dx	Total petroleum hydrocarbons (TPH)–diesel-range organics (DRO) quantification and residual (oil)-range organics (RRO) quantification	All samples
EPA 8020B	Volatile organic constituents (VOCs) as benzene, ethylbenzene, toluene and xylenes (BTEX) +naphthalene	Selected samples
EPA 8270C SIM	Semivolatile organic compounds (polynuclear aromatic hydrocarbons; PAHs)	Selected sample (Parametrix)

3.5 Cleanup Standards

3.5.1 Soil Matrix Cleanup Standards

The Oregon Administrative Rules (OARs) 340-122-0205 through 0360 (Soil Matrix Cleanup Rules) were developed as part of the Underground Storage Tank Cleanup Rules. The Soil Matrix Cleanup Rules permit soil impacts from petroleum hydrocarbons to be cleaned up by setting standards based on site conditions. The cleanup levels are determined for the site by inputting environmental parameters with site-specific values. The values used in determining the Soil Matrix Cleanup level for a site are:

- Annual rainfall
- Soil type
- Sensitivity of the uppermost aquifer
- Depth to ground water
- Distance to nearest potential receptors
- Number of potential receptors

The Soil Matrix Cleanup Score Sheet and Checklist for the site are presented in Appendix D. The score calculated for the site is 34, indicating that a Level II cleanup standard (500-milligrams per Kilogram [mg/Kg] DRO and RRO) is appropriate.

3.5.2 Risk-Based Decision Making

Where Soil Matrix Cleanup standards are not met, or where ground water is impacted, ODEQ allows closure using a risk-based approach described in the agency's *RBDM* guidance document, 2003 revision. Risk-based concentrations (RBCs) provided by ODEQ were developed as screening levels for suspect sites based on Oregon unacceptable additional risk criteria for cancer occurrence and for non-carcinogenic health impacts. The State of Oregon considers acceptable additional risk of cancer from contact with carcinogenic constituents at less than one in one million

incidences, or, for non-carcinogenic constituents, below the constituent threshold concentration at which health impacts would occur.

3.6 Waste Management and Disposal

All waste fluids were taken by ORRCO (Oil Re-Refining Company) for treatment. The decommissioned tank was taken to Metro Metals for recycling. A total of approximately 50 cubic yards of impacted soils were taken to Hillsboro Landfill under a permit issued by Waste Management, Inc. All disposal receipts are included in Appendix E.

3.7 Site Restoration

The excavation was backfilled with clean backfill. All boreholes were backfilled with bentonite chips.

4.0 FINDINGS

Table 4-1 summarizes the sampling locations shown on Figure 3. Laboratory analytical reports are presented in Appendix F.

Figure 4-1. Summary of Sampling Locations

Sample ID	Depth Sampled (feet)	Location
GS01-Floor-13	13	Initial floor sample after first soil removal.
GS02-VW-8	8	Grab sample from west wall of initial excavation
GS03-EW-8	8	Grab sample from east wall of initial excavation
GS04-NW-8	8	Grab sample from north wall of initial excavation
GS05-SW-8	8	Grab sample from south wall of initial excavation
Field UST-14'	14	Floor sample from initial deepening of tank excavation by Parametrix
Field UST-17'	17	Floor sample from second deepening of tank excavation by Parametrix
B1-20	20	Vertical delineation
B2-15	15	Southward delineation sample
B3-15	15	Eastward delineation sample
B4-15	15	Westward delineation sample
B5-15	15	Northward delineation sample

4.1 Discovery

According to Client Portland Development Commission (PDC), the tank was discovered during a Phase I Environmental Site Assessment. Reportedly, Parametrix sited a boring near the tank; however, no impacts were indicated at that time.

PDC then contracted with VEC to perform the decommissioning work. Communications between PDC and VEC regarding the tank removal contract implied that the tank had been the source of a release, and the contract was to include soil removal and closure.

4.2 Soil Sampling Results

The decommissioning project began on September 1, 2011. After removal of the tank, impacted soils were excavated to a depth of 13 feet depth. The floor sample at that depth (GS01-Floor-13) contained 4,800 mg/Kg DRO (see Table 1). BTEX and naphthalene were not detected in the floor sample. Sidewall samples collected at the 8 foot depth on the four sides of the excavation were all below the analytical method detection limits for DRO.

While awaiting laboratory analytical results for the excavation, Parametrix, also working on the site, deepened the excavation to 14 feet on September 6, 2011, and then to 17 feet on September 8, 2011. Floor samples were collected by Parametrix after each removal. Sample "Field UST-14'" contained 2,570 mg/Kg DRO with BTEX and naphthalene all "nondetect", and Sample "Field UST-17'" contained 1,970 mg/Kg, with naphthalene detected at 1.24 mg/Kg. The final dimensions of the excavation were approximately 10 feet east-west by 18 feet north-south by 17 feet deep.

Since the excavation had been deepened by another party, the sidewall samples were no longer adequate to delineate the remaining impacted soils at the bottom of the excavation. Therefore

Cascade Drilling was contracted to complete five borings to delineate the impacted soil plume. One soil sample was collected from each boring and analyzed by NWTPH-Dx. The sample collected at 20 feet depth in Boring B1 (sited at the former tank location) contained 340 mg/Kg DRO, therefore vertically delineating the maximum depth of the plume. Lateral delineation samples for the 15 foot depth were all “nondetect” for DRO in Borings B2, B3, B4, and B5.

The remaining impacted soils were conservatively estimated at 48 cubic yards (the residual plume was modeled as an inverted cone with an upper radius of 4 feet, lower radius of 11 feet, a thickness of 14 feet, yielding a calculated volume of 98.2 cubic yards, minus the 50 cubic yards of impacted soil removed).

5.0 GENERIC REMEDY CLOSURE

Where Soil Matrix Cleanup Standards are not met, ODEQ requires closure of the site under a risk-based approach described in guidance issued in 2003, entitled *Risk Based Decision Making for the Remediation of Petroleum-Contaminated Sites (RBDM)*. However, for sites where heating fuel concentrations in soil are relatively low, impacts to groundwater are unlikely, and volume of impacted soil is small, ODEQ allows file closure under its Heating Oil Tank Generic Remedy guidance document. Therefore, this Section will discuss how the site meets the Generic Remedy criteria.

5.1 Generic Remedy – Cleanup Alternative I

Tier 1 is defined as those heating oil releases that do not exceed 2,500 mg/Kg DRO plus RRO. If all criteria discussed below are met, then the responsible party does not need analysis of VOCs or polynuclear aromatic hydrocarbons (PAHs) and does not need to perform a full risk assessment as described in the RBDM guidance document.

5.2 Generic Remedy Cleanup Alternative I Criteria

Based on Table 5-1 (below), all generic remedy criteria for Cleanup Alternative I closure are met.

Table 5-1. Generic Remedy Cleanup Alternative 1 Criteria

Criteria	Comment	Meets Criteria?
Is the release from an underground heating oil tank and all released contaminants are heating fuel (diesel #2)?	Yes. The release(s) are from an abandoned underground heating oil tank associated with a historical residence.	Yes
Is the maximum heating oil concentration is less than 2,500 mg/Kg DRO plus RRO?	Yes. The maximum residual concentration is 1,970 mg/Kg DRO.	Yes
Is the deepest soil impact above the highest seasonal groundwater?	Yes. The vertical delineation showed that at 20 feet, the impacts to soil were at 340 mg/Kg, below the 500 mg/Kg requirement. US Geological Survey GIS data indicates that the regional groundwater table below the site is at approximately 52 feet below ground surface (Section 2.4).	Yes
Was any free product indicated in any soil sampled or penetrated at the site?	No free product was present in soils associated with the heating oil tank.	Yes
Is there at least three feet of clean soil over residual contaminated soil?	Yes. The uppermost soil impacts were encountered at around six feet depth (bottom of the tank).	Yes
Is the total volume of residual contaminated soil is less than 65 cubic yards?	Yes. The volume of residual impacted soil is very conservatively estimated at 48 cubic yards (Section 4.3).	Yes
Are there any risks to ecological receptors/sensitive environments?	No. The site is located in an urban area. There are no nearby ponds, creeks, wetlands, seeps, ephemeral or perennial drainages, or 100 year flood plains (Section 2.4).	Yes

6.0 CONCLUSIONS AND RECOMMENDATIONS

In September 2011 a heating oil tank located on the Boys and Girls Club facility was decommissioned by removal according to national standards of practice. Impacted soil were associated with the tank, and the tank was observed to have corrosion holes. Accessible impacted soils were excavated and transported off-site for disposal. The remaining impacted soils were conservatively estimated at 48 cubic yards, and are present at depths greater than 17 feet bgs. All the criteria of generic remedy Cleanup Alternative 1 were met, indicating that the residual soils do not present an unacceptable risk to current or potential future receptors. No sensitive environments or resources have been identified in the vicinity of the site. Therefore no additional investigation or remediation is required at the site.

Varchan and ENW recommend that a Soil and Water Management Plan should be prepared to assure that petroleum-impacted soil is properly managed and handled during any future site development activities.

Varchan has prepared a Certificate of Heating Oil Tank Decommissioning and Cleanup for the project. A copy of this report and certificate were submitted to the Oregon Department of Environmental Quality with appropriate fees to close the file concerning the release with the agency.

7.0 LIMITATIONS

The scope of this report is limited to observations made during on-site work; interviews with knowledgeable sources; and review of readily available published and unpublished reports and literature. As a result, these conclusions are based on information supplied by others as well as interpretations by qualified parties. The focus of the site closure does not extend to the presence of the following conditions unless they were the express concerns of contacted personnel, report and literature authors or the work scope.

1. Naturally occurring toxic or hazardous substances in subsurface soils, geology and water,
2. Toxicity of substances common in current habitable environments, such as stored chemicals, products, building materials and consumables,
3. Contaminants or contaminant concentrations that are not a concern now but may be under future regulatory standards,
4. Unpredictable events that may occur after Varchan and ENW's site visit, such as illegal dumping or accidental spillage.

There is no practice that is thorough enough to absolutely identify the presence of all hazardous substances that may be present at a given site. Our investigation has been focused only on the potential for contamination that was specifically identified in the SOW. Therefore, if contamination other than that specifically mentioned is present and not identified as part of a limited SOW, Varchan and ENW's environmental investigation shall not be construed as a guaranteed absence of such materials. Varchan and ENW have endeavored to collect representative analytical samples for the locations and depths indicated in this report. However, no sampling program can thoroughly identify all variations in contaminant distribution.

We have performed our services for this project in accordance with our agreement and understanding with the Client. This document and the information contained herein have been prepared solely for the use of the Client.

ENW performed this study under a limited scope of services per our agreement. It is possible, despite the use of reasonable care and interpretation, that Varchan and ENW may have failed to identify regulation violations related to the presence of hazardous substances other than those specifically mentioned at the closure site. Varchan and ENW assume no responsibility for conditions that we did not specifically evaluate or conditions that were not generally recognized as environmentally unacceptable at the time this report was prepared.

TABLES

Table 1 - Summary of Analytical Data, Soil

Sample ID	GS01-Floor-13	GS02-WW-8	GS03-EW-8	GS04-NW-8	GS05-SW-8	Field UST-14'	Field UST-17'	B1-20	B2-15	B3-15	B4-15	B5-15	Maximum Soil Concentration (remaining soil)	Soil Matrix Cleanup Level	ODEQs Screening-Level RBCs ¹ (Soil)	Constituent of Potential Concern TRUE OR Y FALSE OR N	
Date Sampled	9/1/11	9/1/11	9/1/11	9/1/11	9/1/11	9/6/11	9/8/11	10/4/11	10/5/11	10/6/11	10/7/11	10/8/11					
Depth Sampled (feet)	13	8	8	8	8	14	17	20	15	15	15	15					
Sampled By	ENW	ENW	ENW	ENW	ENW	Parametrix	Parametrix	ENW	ENW	ENW	ENW	ENW					
Location	Initial floor sample after first soil removal. [REMOVED]	Grab sample from west wall of initial excavation	Grab sample from east wall of initial excavation	Grab sample from north wall of initial excavation	Grab sample from south wall of initial excavation	Floor sample from initial deepening of tank excavation by Parametrix [REMOVED]	Floor sample from second deepening of tank excavation by Parametrix	Vertical delineation	Southward delineation sample	Eastward delineation sample	Westward delineation sample	Northward delineation sample					
Constituent of Interest	Note	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	
Volatile Organic Constituents																	
Benzene	c, v	<0.03 (ND)	---	---	---	---	<0.0272 (ND)	<0.0273 (ND)	---	---	---	---	---	<0.0273 (ND)	NE	0.0093	(Y)
Ethylbenzene	c, v	<0.05 (ND)	---	---	---	---	<0.109 (ND)	<0.109 (ND)	---	---	---	---	---	<0.109 (ND)	NE	0.16	N
Naphthalene	c, v	<0.05 (ND)	---	---	---	---	<0.00667 (ND)	1.24	---	---	---	---	---	1.24	NE	0.087	Y
Toluene	nc, v	<0.05 (ND)	---	---	---	---	<0.109 (ND)	<0.109 (ND)	---	---	---	---	---	<0.109 (ND)	NE	140	N
Xylenes	nc, v	<0.15 (ND)	---	---	---	---	<0.327 (ND)	<0.327 (ND)	---	---	---	---	---	<0.327 (ND)	NE	25	N
Semivolatile Organic Constituents																	
Polycyclic Aromatic Hydrocarbons																	
Acenaphthene	nc, v	---	---	---	---	---	<0.00667 (ND)	---	---	---	---	---	---	---	NE	4700	---
Anthracene	nc, v	---	---	---	---	---	<0.00667 (ND)	---	---	---	---	---	---	---	NE	23000	---
Benz[a]anthracene	c, nv	---	---	---	---	---	<0.00667 (ND)	---	---	---	---	---	---	---	NE	0.15	---
Benzo[a]pyrene	c, nv	---	---	---	---	---	<0.00667 (ND)	---	---	---	---	---	---	---	NE	0.015	---
Benzo[b]fluoranthene	c, nv	---	---	---	---	---	<0.00667 (ND)	---	---	---	---	---	---	---	NE	0.15	---
Benzo[k]fluoranthene	c, nv	---	---	---	---	---	<0.00667 (ND)	---	---	---	---	---	---	---	NE	1.5	---
Chrysene	c, nv	---	---	---	---	---	<0.00667 (ND)	---	---	---	---	---	---	---	NE	15	---
Dibenz[a,h]anthracene	c, nv	---	---	---	---	---	<0.00667 (ND)	---	---	---	---	---	---	---	NE	0.015	---
Fluoranthene	nc, nv	---	---	---	---	---	0.0113	---	---	---	---	---	---	---	NE	2300	---
Fluorene	nc, v	---	---	---	---	---	<0.00667 (ND)	---	---	---	---	---	---	---	NE	3100	---
Indeno[1,2,3-cd]pyrene	c, nv	---	---	---	---	---	<0.00667 (ND)	---	---	---	---	---	---	---	NE	0.15	---
Pyrene	nc, nv	---	---	---	---	---	<0.00667 (ND)	---	---	---	---	---	---	---	NE	1700	---
Total Petroleum Hydrocarbons																	
DRO	nc, nv	4800	<50 (ND)	<50 (ND)	<50 (ND)	<50 (ND)	2570	1970	340	<50 (ND)	<50 (ND)	<50 (ND)	<50 (ND)	4800	500	2800	Y
RRO	nc, nv	<250 (ND)	<250 (ND)	<250 (ND)	<250 (ND)	<250 (ND)	<54.5 (ND)	79.2	<250 (ND)	<250 (ND)	<250 (ND)	<250 (ND)	<250 (ND)	<250 (ND)	500	9800	N

Notes:

mg/Kg = milligram per kilogram or parts per million
 <# (ND) = not detected at or above the laboratory method reporting limit shown.
 --- = not analyzed or not applicable.
 c = carcinogenic
 nc = noncarcinogenic
 v = volatile
 nv = nonvolatile
 DRO = diesel-range organics.
 RRO = residual-range organics.

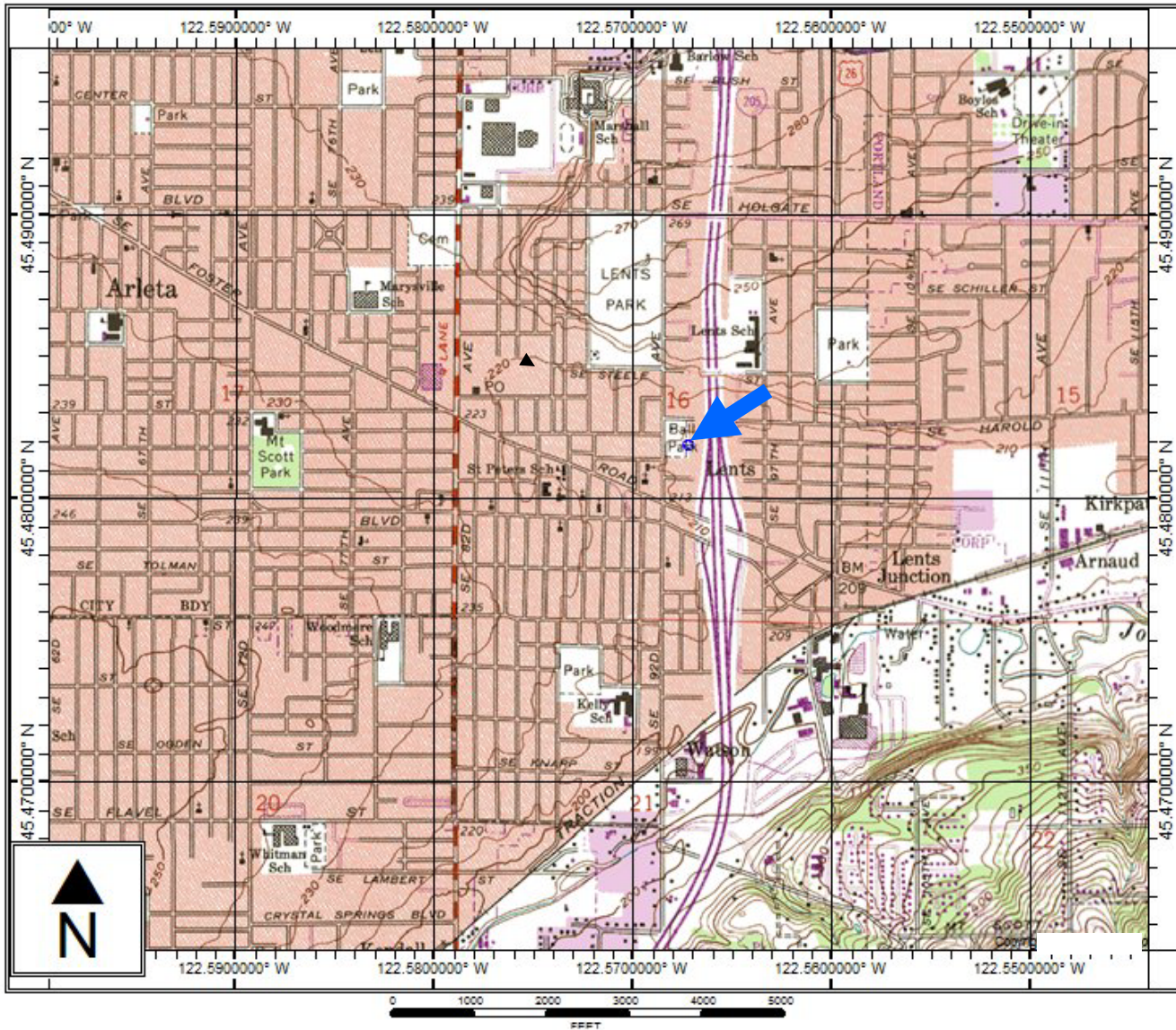
Bolded concentrations exceed either Soil Matrix Cleanup Standards or screening level risk-based concentrations and background concentrations, as applicable.

¹ Lowest Risk-Based Concentration for soil (screening level).

(Y) indicates analyte not detected, but detection limit is above screening concentration.

 Pink cells in table indicate soils that have been removed to appropriate waste disposal/recycling locations

FIGURES



Source: USGS Mt. Tabor 7.5 minute Quadrangles, Oregon.



Date Drawn: 10/13/2011
 CAD File Name: 319-11009-01svmap
 Drawn By: LDG
 Approved By: NMW

Boys and Girls Club
 9330 SE Harold Street
 Portland, OR 97266

Site Vicinity Map

Project No.
 319-11009-01

Figure No.
 1

DRAWING NUMBER 319-11009(v01)

APPROVED BY N.WOLLER 10/07/2011

CHECKED BY L.GREEN 10/07/2011







DRAWN BY N.MORRIS 10/07/2011

SE 92ND ST

SE HAROLD ST



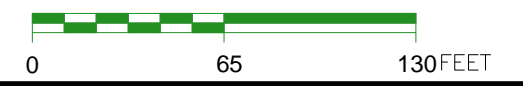
LEGEND:

-  APPROXIMATE BUILDING LOCATIONS
-  APPROXIMATE PROPERTY BOUNDARIES
-  APPROXIMATE SUBJECT PROPERTY BOUNDARIES
-  APPROXIMATE SUBJECT BUILDINGS
-  APPROXIMATE LOCATION OF FORMER UST
- SFR SINGLE FAMILY RESIDENCE
- UST: UNDERGROUND STORAGE TANK
-  HISTORICAL FEATURES

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2011 AND ENW FIELD NOTES.

APPROXIMATE SCALE



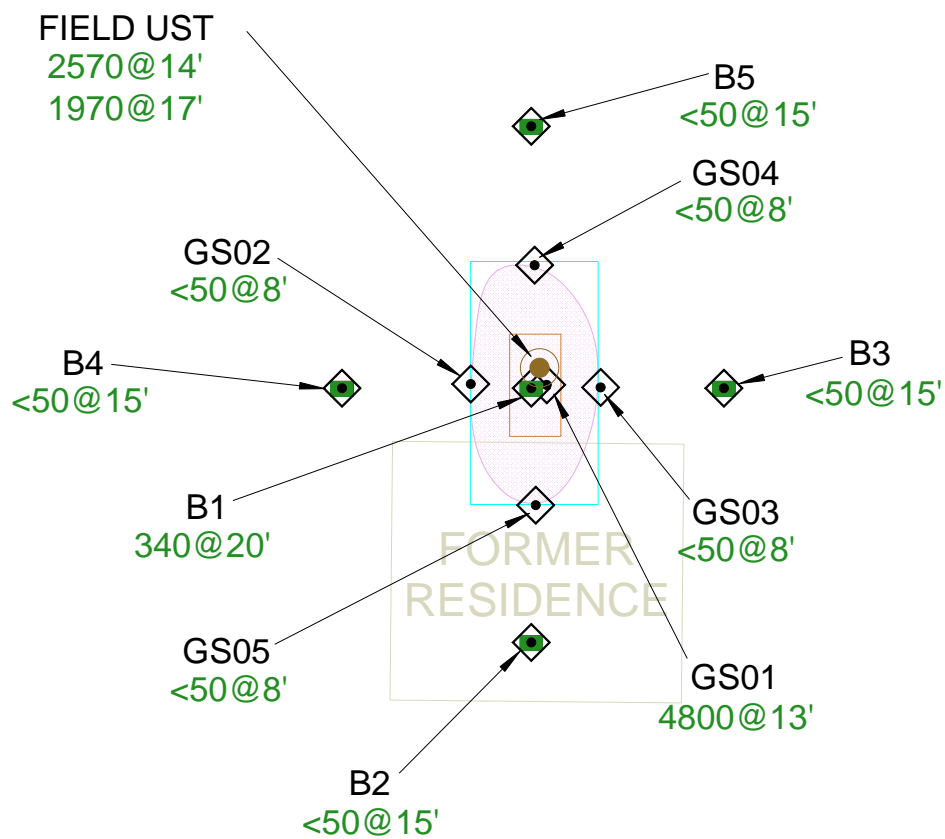
PO BOX 14488, PORTLAND, OREGON 97293
(503)452-5561 Fax(503)452-7669

FIGURE 2

SITE PLAN

BOYS & GIRLS CLUB
9330 SE HAROLD STREET
PORTLAND, OREGON

DRAWING 319-11009(v01)
 NUMBER
 APPROVED BY
 N.WOLLER 10/07/2011
 CHECKED BY
 L.GREEN 10/07/2011
 DRAWN BY
 N.MORRIS 10/07/2011



WALKING/
 BIKE
 PATH

LEGEND:

- APPROXIMATE SUBJECT PROPERTY BOUNDARIES
- APPROXIMATE LOCATION OF FORMER UST
- HISTORICAL FEATURES
- APPROXIMATE EXCAVATION BOUNDARIES
- GS01
 ENW ASSESSMENT SAMPLE LOCATION
- B1
 ENW CONFIRMATION SAMPLE LOCATION
- FIELD UST
 PARAMETRIX SAMPLE LOCATION

<50@8' CONCENTRATION (mg/Kg) OF DRO @ DEPTH IN FEET BGS

INFERRED AREA OF RESIDUAL DRO-IMPACTED SOIL EXCEEDING SOIL MATRIX CLEANUP LEVELS >500

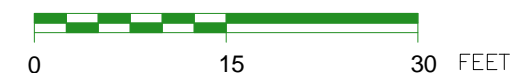
DRO: DIESEL-RANGE HYDROCARBONS
 MG/KG: MILLIGRAMS PER KILOGRAM
 UST: UNDERGROUND STORAGE TANK
 BGS: BELOW GROUND SURFACE

<#:#: NOT DETECTED AT OR ABOVE ANALYTICAL METHOD REPORTING LIMIT (#).

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2011 AND ENW FIELD NOTES.

APPROXIMATE SCALE



PO BOX 14488, PORTLAND, OREGON 97293
 (503)452-5561 Fax(503)452-7669

FIGURE 3
 SAMPLE LOCATION DIAGRAM
 (SOIL)



BOYS & GIRLS CLUB
 9330 SE HAROLD STREET
 PORTLAND, OREGON

FORMER
 BASEBALL
 DIAMOND

APPENDIX A BORING LOGS









EVREN Northwest, Inc.

DRILL LOG	PROJECT		PROJECT NO.		BORING NO.
	Boys and Girls Club		319-11009-01		B1
SITE		BEGUN	COMPLETED	HOLE SIZE	ANGLE FROM HORIZ.
9330 SE Harold Street, Portland, Oregon		10/4/11	10/4/11	2.25 in.	
COORDINATES		DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER
					none
DRILLER		CORE RECOVERY (%)		# SAMPLES	# CORE BOXES
Cascade Drilling					
DRILL MAKE AND MODEL		LOGGED BY:			DEPTH BOTTOM OF HOLE
		Morris			20

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA				PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
				SAMPLE NO.	SAMPLE TYPE	CORE RECOVERY	MW Const./ Completion		
0			Fill materials						
4						40			
8						40			
12						40			
16						40			
20			Light brown and gray coarse sandy gravel and cobbles (GP), well sorted, loose, sub-rounded, dry, few fines	B1-20				30	
20			Refusal at 20 ft.			70		8	
24								5	
28									

EVREN Northwest, Inc.

DRILL LOG	PROJECT Boys and Girls Club		PROJECT NO. 319-11009-01		BORING NO. B2	
	SITE 9330 SE Harold Street, Portland, Oregon		BEGUN 10/4/11	COMPLETED 10/4/11	HOLE SIZE 2.25 in.	ANGLE FROM HORIZ.
COORDINATES		DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER none	GROUND ELEVATION
DRILLER Cascade Drilling		CORE RECOVERY (%)		# SAMPLES	# CORE BOXES	DEPTH TOP OF ROCK
DRILL MAKE AND MODEL		LOGGED BY: Morris				DEPTH BOTTOM OF HOLE 20

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA				PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
				SAMPLE NO.	SAMPLE TYPE	CORE RECOVERY	MW Const./ Completion		
0			Light brown silty sand (Fill, SM), dry loose						
			Light brown fill sand (SP)						
			light brown silty sandy gravel (GM), angular clasts, possible fill.						
4			Light brown and gray coarse sand and gravel with some silts, dry, loose, well sorted, some bedding evident			40		0.1	
8								0.2	
12						50		0.2	
16				B2-15		60		0.2	
20			Sandy cobbly gravels, well sorted, loose, sub-rounded, dry, few fines	B2-20				0.2	
20			Bottom at 20 ft.			80		0.2	
24									
28									

EVREN Northwest, Inc.

DRILL LOG	PROJECT Boys and Girls Club		PROJECT NO. 319-11009-01		BORING NO. B3	
	SITE 9330 SE Harold Street, Portland, Oregon		BEGUN 10/4/11	COMPLETED 10/4/11	HOLE SIZE 2.25 in.	ANGLE FROM HORIZ.
COORDINATES		DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER none	GROUND ELEVATION
DRILLER Cascade Drilling		CORE RECOVERY (%)		# SAMPLES	# CORE BOXES	DEPTH TOP OF ROCK
DRILL MAKE AND MODEL		LOGGED BY: Morris				DEPTH BOTTOM OF HOLE 20

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA				PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
				SAMPLE NO.	SAMPLE TYPE	CORE RECOVERY	MW Const./ Completion		
0			Light brown silty sand (Fill, SM), dry loose						
4			light brown silty sandy gravel (GM), angular clasts, possible fill.			30		0.1	
8			Light brown and gray coarse sand and gravel dry, loose, well sorted			25		0.1	
12								0.1	
16				B3-15		80		0.1	
20			Sandy cobbly gravels, well sorted, loose, sub-rounded, dry, few fines, some moisture at 18.5 ft.	B3-20				0.1	
20			Bottom at 20 ft.			90		0.1	
24									
28									

EVREN Northwest, Inc.

DRILL LOG	PROJECT Boys and Girls Club		PROJECT NO. 319-11009-01		BORING NO. B4	
	SITE 9330 SE Harold Street, Portland, Oregon		BEGUN 10/4/11	COMPLETED 10/4/11	HOLE SIZE 2.25 in.	ANGLE FROM HORIZ.
COORDINATES		DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER none	GROUND ELEVATION
DRILLER Cascade Drilling		CORE RECOVERY (%)		# SAMPLES	# CORE BOXES	DEPTH TOP OF ROCK
DRILL MAKE AND MODEL		LOGGED BY: Morris				DEPTH BOTTOM OF HOLE 16.5

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA				PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
				SAMPLE NO.	SAMPLE TYPE	CORE RECOVERY	MW Const./ Completion		
0			Light brown silty sand (Fill, SM), dry, loose						
4			light brown silty sandy gravel (GM), angular clasts, possible fill.			50		0	
8			Light brown and gray coarse sand and gravel dry, loose, well sorted			40		0	
12								0	
16			some moisture at 16 ft	B4-15		50		0.1	
16.5			Refusal at 16.5 ft	B4-16.5		30		0	
20									
24									
28									

EVREN Northwest, Inc.

DRILL LOG	PROJECT Boys and Girls Club		PROJECT NO. 319-11009-01		BORING NO. B5	
	SITE 9330 SE Harold Street, Portland, Oregon		BEGUN 10/4/11	COMPLETED 10/4/11	HOLE SIZE 2.25 in.	ANGLE FROM HORIZ.
COORDINATES		DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER none	GROUND ELEVATION
DRILLER Cascade Drilling		CORE RECOVERY (%)		# SAMPLES	# CORE BOXES	DEPTH TOP OF ROCK
DRILL MAKE AND MODEL		LOGGED BY: Morris				DEPTH BOTTOM OF HOLE 20

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA				PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
				SAMPLE NO.	SAMPLE TYPE	CORE RECOVERY	MW Const./ Completion		
0			Light brown silty sand (Fill, SM), dry, loose						
4			light brown silty sandy gravel (GM), angular clasts, possible fill.			40		0.1	
8			Light brown and gray coarse sand and gravel dry, loose, well sorted			30		0.1	
12								0.1	
16			some moisture at 16 ft, also bigger cobbles	B5-15		50		0.1	
20			Bottom at 20 ft	B5-16.5		80		0.1	
24									
28									

APPENDIX B REPRESENTATIVE WELLS

**STATE OF OREGON
GEOTECHNICAL HOLE REPORT**
(as required by OAR 690-240-035)

(1) OWNER/PROJECT: Portland Development Commission Hole Number GP-1
 Name Portland Development Commission
 Address 1900 SW 4th Ave Suite 700
 City Portland State OR Zip 97206

(2) TYPE OF WORK
 New Deepening Alteration (repair/recondition) Abandonment

(3) CONSTRUCTION:
 Rotary Air Hand Auger Hollow Stem Auger
 Rotary Mud Cable Tool Push Probe Other

(4) TYPE OF HOLE:
 Uncased Temporary Cased Permanent
 Uncased Permanent Slope Stability Other

(5) USE OF HOLE: Soil Samples

(6) BORE HOLE CONSTRUCTION:
 Special Construction approval Yes No Depth of Completed Hole 34 ft.

HOLE			SEAL		
Diameter	From	To	Material	From	To
2.25"	0	34			

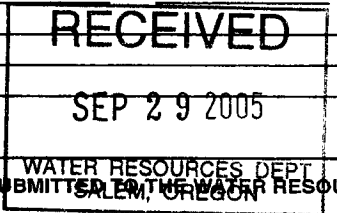
Backfill placed from 0 ft. to 34 ft. Material AC/Bentonite
 Filter Pack placed from _____ ft. to _____ ft. Size of pack _____

(7) CASING/SCREEN:

	Diameter	From	To	Gauge	Material			
					Steel	Plastic	Welded	Threaded
Casing:					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Screen:					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slot size					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(8) WELL TEST:
 Pump Bailer Air Flowing Artesian
 Permeability _____ Yield _____ GPM
 Conductivity _____ PH _____
 Temperature of water 54 °C Depth artesian flow found _____ ft.
 Was water analysis done? Yes No
 By whom? _____
 Depth of strata analyzed. From _____ ft. to _____ ft.

Remarks: _____



(9) LOCATION OF HOLE by legal description:
 County MULT Latitude _____ Longitude _____
 Township 1 N or S Range 2 or W. WM.
 Section 16 NE 1/4 SW 1/4
 Tax Lot 7600 Lot _____ Block _____ Subdivision _____
 Street Address of Well (or nearest address) SE 88th & Foster Rd

Map with location identified must be attached

(10) STATIC WATER LEVEL:
30 ft. below land surface. Date 9/9/05
 Artesian pressure _____ lb. per square inch. Date _____

(11) SUBSURFACE LOG:
 Ground Elevation _____

Material Description	From	To	SWL
Asphalt	0	2	
Gravel	2	1	
Gravelly Sand w/cobbles	1	34	30

Date Started 9/9/05 Date Completed 9/9/05

(12) ABANDONMENT LOG:

Material Description	From	To	Sacks of Pounds
Asphalt	0	1	2
Hole plug	1	34	40

Date started 9/9/05 Date Completed 9/9/05

Professional Certification
 (to be signed by a licensed water supply or monitoring well constructor, or Oregon registered geologist or civil engineer).

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

License or Registration Number 10548

Signed Maureen Clark Date 9/27/05

Affiliation Geo Tech Explorations

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

Delivering smarter solutions

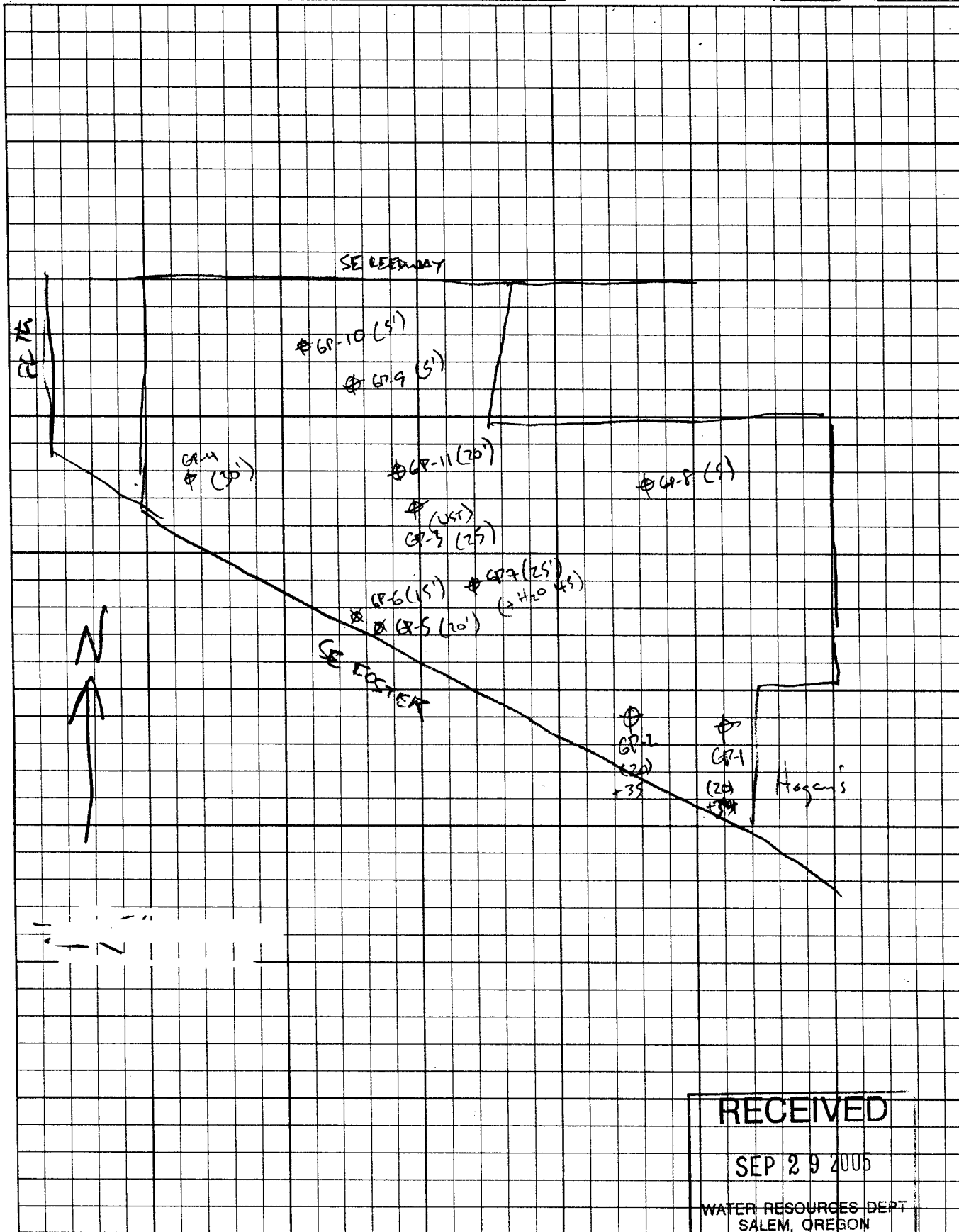
Project _____
Calculations for _____

Page _____ of _____

Job No. _____

Made By _____ Date _____

Checked By _____ Date _____



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

1) OWNER/PROJECT: WELL NO. 7
 Name City of Portland Bureau of Env. Services
 Address 1120 SW 5th Ave RM 1000 Attn: Katie Thompson
 City Portland State OR Zip 97204-1972

(6) LOCATION OF WELL: By legal description
 Well Location: County Multnomah
 Township 15 (N or S) Range 2E (E or W) Section 16
 1. NW 1/4 of NW 1/4 of above section.
 2. Either Street address of well location Jents Park
SE 92nd Ave + SE Raymond St. Portland
 or Tax lot number of well location 100

(2) TYPE OF WORK:
 New construction Alteration (Repair/Recondition)
 Conversion Deepening Abandonment

(3) DRILLING METHOD
 Rotary Air Rotary Mud Cable
 Hollow Stem Auger Other _____

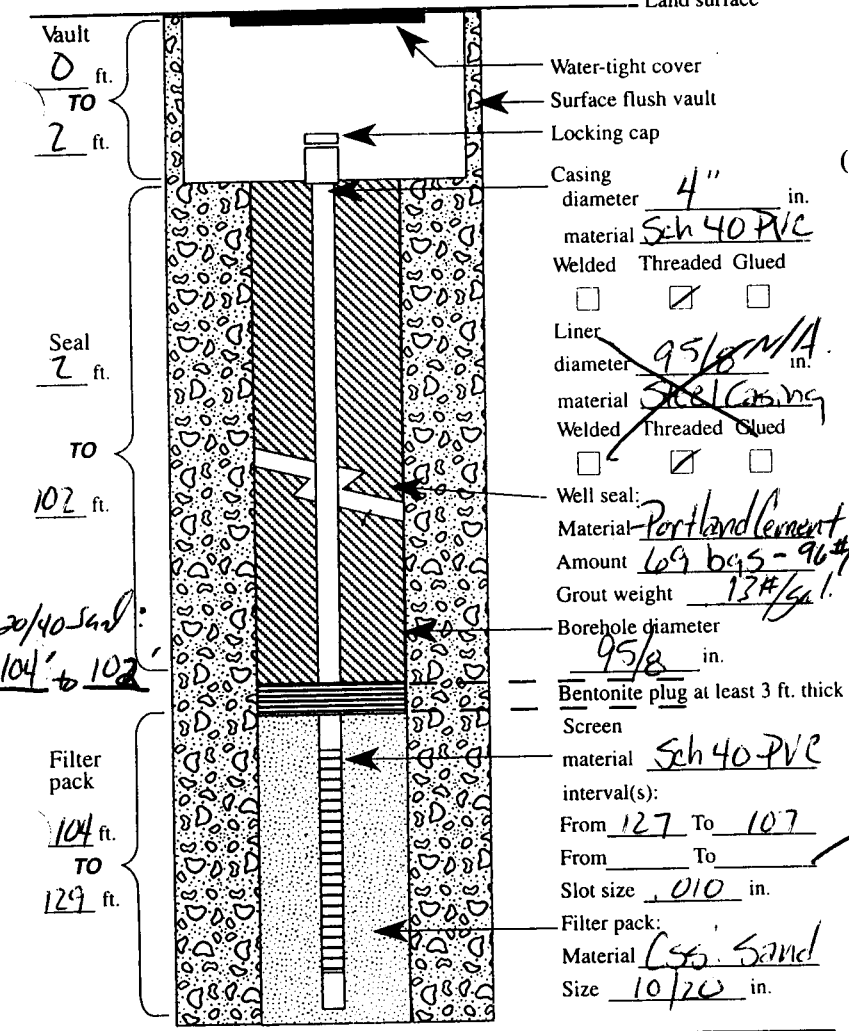
3. ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL:
94.5 Ft. below land surface. Date 2/2/01
 Artesian Pressure _____ lb/sq. in. Date _____

(4) BORE HOLE CONSTRUCTION
 Special Standards Yes No Depth of completed well 129 ft.
 Land surface _____

(8) WATER BEARING ZONES:
 Depth at which water was first found 108

From	To	Est. Flow Rate	SWL
<u>108</u>	<u>129</u>		<u>94.5</u>



(9) WELL LOG: Ground elevation _____

Material	From	To	SWL
<u>Gravel s.w./minor sand</u>	<u>0</u>	<u>101</u>	
<u>Gravel s</u>	<u>101</u>	<u>129</u>	<u>94.5</u>

RECEIVED
 MAR 13 2001
 WATER RESOURCES DEPT.
 SALEM, OREGON

2' sump: 127-129'

Date started 1/30/01 Completed 2/2/01

(5) WELL TEST:
 Pump Bailer Air Flowing Artesian
 Permeability _____ Yield _____ GPM
 Conductivity _____ PH _____
 Temperature of water 56 °F/C Depth artesian flow found _____ ft.
 Was water analysis done? Yes No
 By whom? _____
 Depth of strata to be analyzed. From _____ ft. to _____ ft.
 Remarks: _____
 Name of supervising Geologist/Engineer OR0218

(unbonded) Monitor Well Constructor Certification:
 I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.
 Signed [Signature] MWC Number 10426
 Date 2/5/01

(bonded) Monitor 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 well construction standards. This report is true to the best of my knowledge and belief.
 Signed [Signature] MWC Number 10024
 Date 2/9/01

SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

APPENDIX C PHOTOGRAPHS



Location of abandoned heating oil tank in ball field.



Cutting open the tank.



Exposing the tank.



The tank was pumped and cleaned by ORRCO.



Boys and Girls Club
9330 SE Harold Street
Portland, Oregon

Site Photographs

Project No.
319-11009-01

Appendix
C



The interior of the tank was cleaned before it was removed.



Corrosion holes visible in the side of the tank.



Removing the tank from the excavation.



Impacted gravelly soils from the excavation.



Boys and Girls Club
9330 SE Harold Street
Portland, Oregon

Site Photographs

Project No.
319-11009-01

Appendix
C



View into excavation at 13 feet depth.



Close up of soils recovered in CAB core sleeves.



View into excavation, cat blade for scale.



Using a PID to determine if soils are impacted with volatile organics.



Boys and Girls Club
9330 SE Harold Street
Portland, Oregon

Site Photographs

Project No.
319-11009-01

Appendix
C



Push probe rig set up on delineation boring location.



Overview of recovered core from delineation borings.

	Boys and Girls Club 9330 SE Harold Street Portland, Oregon	Site Photographs	Project No. 319-11009-01 Appendix C
---	--	-------------------------	---

**APPENDIX D SOIL MATRIX CLEANUP SCORESHEET AND CLEANUP
CHECKLIST**

Depth to Ground water < 25 feet (10) 25 – 50 feet (7) 51 – 100 feet (4) > 100 feet (1)	10
Mean Annual Precipitation > 45 inches (10) 20 – 45 inches (5) < 20 inches (1)	5
Native Soil Types Coarse sands, gravels (10) Silts, fine sands (5) Clays (1)	10
Sensitivity of uppermost Aquifer Sole Source (10) Current Potable (7) Future Potable (4) Non-potable (1)	4
Potential Receptors Many, near (10) Medium (5) Few, far (1)	5
TOTAL SCORE =	34

Matrix Score	Cleanup level in ppm TPH	
	Gasoline	Diesel
Level 1: > 40 pts.	40	100
Level 2: 25 - 40 pts.	80	500
Level 3: < 25 pts.	130	1000



OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Underground Storage Tank Program

HEATING OIL TANK SERVICES
SERVICE PROVIDER REPORT CERTIFICATION

CLEANUP CHECKLIST

July 3, 2001
Form No. HOT-CuClst.2.070301

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: Portland Development Commission

Tank Site Address: Boys and Girls Club, 9330 SE Harold Street
Portland, Oregon 97266

DEQ Cleanup File Number: 26-11-0916

Date Release Reported: 9/1/2011

Licensed HOT Service
Provider Company Name: Varchan Environmental Construction

16485 3/15/2012
License Number 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: approx 50 cubic yards
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, 1999)

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 ground water 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, 1999).

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. Ground water 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 ___20_ feet above the seasonal high ground water 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 ___1,970_____ (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. No benzene was detected in the soil in excess of 0.1 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 1999) guidance document.

**SECTION E - GROUND WATER 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 ground water, 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/wmc/tank/ust-lust.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:

Neil M. Woller

(please print)

18111
License Number

8/25/2012
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: _____ Date: 10/11/2011

APPENDIX E WASTE RECEIPTS

APPENDIX F LABORATORY ANALYTICAL REPORTS

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

October 7, 2011

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

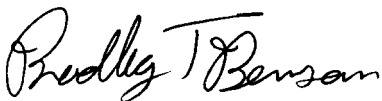
Dear Mr. Green:

Included are the results from the testing of material submitted on October 5, 2011 from the 319-11009-01/Boys and Girls Club, F&BI 110038 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Bradley T. Benson
Chemist

Enclosures
c: Neil Woller
ENW1007R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 5, 2011 by Friedman & Bruya, Inc. from the Evren Northwest 319-11009-01/Boys and Girls Club, F&BI 110038 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
110038-01	B1-20
110038-02	B2-15
110038-03	B2-20
110038-04	B3-15
110038-05	B3-20
110038-06	B4-15
110038-07	B4-16.5
110038-08	B5-15
110038-09	B5-20
110038-10	B4-20

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/07/11

Date Received: 10/05/11

Project: 319-11009-01/Boys and Girls Club, F&BI 110038

Date Extracted: 10/05/11

Date Analyzed: 10/05/11

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND RESIDUAL RANGE
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Residual Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
B1-20 110038-01	340	<250	124
B2-15 110038-02	<50	<250	111
B3-15 110038-04	<50	<250	124
B4-15 110038-06	<50	<250	109
B5-15 110038-08	<50	<250	115
Method Blank 01-1807 MB	<50	<250	111

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/07/11

Date Received: 10/05/11

Project: 319-11009-01/Boys and Girls Club, F&BI 110038

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-Dx**

Laboratory Code: 110038-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	107	116	63-146	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	111	79-144

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- A1 – More than one compound of similar molecule structure was identified with equal probability.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte indicated may be due to carryover from previous sample injections.
- d - The sample was diluted. Detection limits may be raised due to dilution.
- ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
- dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.
- fb - Analyte present in the blank and the sample.
- fc – The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.
- ht - Analysis performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j – The result is below normal reporting limits. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.
- jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the compound indicated is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.
- pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

110038

SAMPLE CHAIN OF CUSTODY ME 10/5/11

003

Send Report To LYNN D. GREEN, M.S.
 Company EYREN NORTHWEST INC.
 Address 18 SE 24TH AVENUE
 City, State, Zip PORTLAND, OR 97214
 Phone # (503)452-5561 Fax # (503)452-7669

SAMPLERS (signature) <i>[Signature]</i>		PO #
PROJECT NAME/NO.	319-11009-01 / Soils & Greases CCWS	319-11009-01
REMARKS		

Page # 1 of 1

TURNAROUND TIME
 Standard (2 Weeks)
 RUSH
 Rush charges authorized by: _____

SAMPLE DISPOSAL
 Dispose after 30 days
 Return samples
 Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED					Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270		HFS
B1-20	01	10-4-11	0657	Soil	1	X						
B2-15	02		1035		1	X						Hold
B2-20	03		1037		1							Hold
B3-15	04		1110		1	X						
B3-20	05		1113		1							Hold
B4-15	06		1134		1	X						
B4-16.5	07		1136		1							Hold
B5-15	08		1201		1	X						
B5-20	09		1203		1							Hold
B4-20	10		1232		1							Hold

Friedman & Bruya, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282
 Fax (206) 283-5044
 FORMS\COC\COC.DOC

Relinquished by: <i>[Signature]</i>	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Received by: <i>[Signature]</i>		N. Green	ENV	10-4-11	1420
Relinquished by: <i>[Signature]</i>		Moran Pharo	FEBT	10/5/11	0920
Received by:					

Samples received at 4 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

September 8, 2011

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

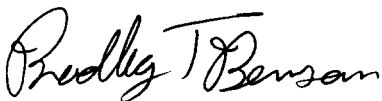
Dear Mr. Green:

Included are the results from the testing of material submitted on September 2, 2011 from the 319-11009-01/Boys + Girls Club, F&BI 109025 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Bradley T. Benson
Chemist

Enclosures
c: Neil Woller
ENW0908R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 2, 2011 by Friedman & Bruya, Inc. from the Evren Northwest 319-11009-01/Boys + Girls Club, F&BI 109025 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
109025-01	GS01-Floor-13
109025-02	GS02-WW-8
109025-03	GS03-EW-8
109025-04	GS04-NW-8
109025-05	GS05-SW-8

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/08/11

Date Received: 09/02/11

Project: 319-11009-01/Boys + Girls Club, F&BI 109025

Date Extracted: 09/02/11

Date Analyzed: 09/02/11

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND RESIDUAL RANGE
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Residual Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
GS01-Floor-13 109025-01	4,800	<250	107
GS02-WW-8 109025-02	<50	<250	100
GS03-EW-8 109025-03	<50	<250	100
GS04-NW-8 109025-04	<50	<250	100
GS05-SW-8 109025-05	<50	<250	104
Method Blank 01-1604 MB	<50	<250	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GS01-Floor-13	Client:	Evren Northwest
Date Received:	09/02/11	Project:	319-11009-01/Boys + Girls Club, F&BI 109025
Date Extracted:	09/02/11	Lab ID:	109025-01
Date Analyzed:	09/02/11	Data File:	090204.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	42	158
Toluene-d8	100	42	159
4-Bromofluorobenzene	113	36	160

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	319-11009-01/Boys + Girls Club, F&BI 109025
Date Extracted:	09/02/11	Lab ID:	01-1526 mb2
Date Analyzed:	09/02/11	Data File:	090203.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	42	158
Toluene-d8	100	42	159
4-Bromofluorobenzene	105	36	160

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/08/11

Date Received: 09/02/11

Project: 319-11009-01/Boys + Girls Club, F&BI 109025

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-Dx**

Laboratory Code: 109022-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	52	100	100	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	101	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/08/11

Date Received: 09/02/11

Project: 319-11009-01/Boys + Girls Club, F&BI 109025

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES
FOR VOLATILES BY EPA METHOD 8260C**

Laboratory Code: 108415-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	
				Recovery MS	Acceptance Criteria
Benzene	mg/kg (ppm)	2.5	<0.03	57	33-113
Toluene	mg/kg (ppm)	2.5	<0.05	59	38-139
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	56	38-120
m,p-Xylene	mg/kg (ppm)	5	<0.1	55	37-122
o-Xylene	mg/kg (ppm)	2.5	<0.05	59	39-121
Naphthalene	mg/kg (ppm)	2.5	<0.05	63	12-168

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent		Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Benzene	mg/kg (ppm)	2.5	83	86	69-122	4
Toluene	mg/kg (ppm)	2.5	84	85	72-122	1
Ethylbenzene	mg/kg (ppm)	2.5	86	87	72-130	1
m,p-Xylene	mg/kg (ppm)	5	86	86	72-131	0
o-Xylene	mg/kg (ppm)	2.5	86	89	71-129	3
Naphthalene	mg/kg (ppm)	2.5	85	93	60-125	9

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- A1 – More than one compound of similar molecule structure was identified with equal probability.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.
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- jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
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- pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.
- pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Specialty Analytical

Date: 09-Sep-11

CLIENT: Parametrix
Lab Order: 1109027
Project: PDC-B&G Club/273-1962-027
Lab ID: 1109027-01

Client Sample ID: Field UST-14'
Collection Date: 9/6/2011 11:55:00 AM
Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
NWTPH-DX		NWTPH-DX				Analyst: jrp
Diesel	2570	16.3		mg/Kg-dry	1	9/7/2011
Lube Oil	ND	54.5	A3	mg/Kg-dry	1	9/7/2011
Surr: o-Terphenyl	205	50-150	S,MI	%REC	1	9/7/2011
BTEX - RBC		SW8021B				Analyst: jrp
Benzene	ND	0.0272		mg/Kg-dry	1	9/7/2011
Toluene	ND	0.109		mg/Kg-dry	1	9/7/2011
Ethylbenzene	ND	0.109		mg/Kg-dry	1	9/7/2011
Xylenes, Total	ND	0.327		mg/Kg-dry	1	9/7/2011
Surr: 4-Bromofluorobenzene	91.5	42.6-126		%REC	1	9/7/2011
LOW LEVEL PAH BY GC/MS		8270SIM				Analyst: bda
Acenaphthene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Acenaphthylene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Anthracene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Benz(a)anthracene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Benzo(a)pyrene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Benzo(b)fluoranthene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Benzo(g,h,i)perylene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Benzo(k)fluoranthene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Chrysene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Dibenz(a,h)anthracene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Fluoranthene	11.3	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Fluorene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Indeno(1,2,3-cd)pyrene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Naphthalene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Phenanthrene	ND	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Pyrene	16.7	6.67		µg/Kg	1	9/6/2011 6:30:00 PM
Surr: 2-Fluorobiphenyl	43.7	42.6-128		%REC	1	9/6/2011 6:30:00 PM
Surr: Nitrobenzene-d5	58.0	21.7-155		%REC	1	9/6/2011 6:30:00 PM
Surr: p-Terphenyl-d14	45.6	44.9-155		%REC	1	9/6/2011 6:30:00 PM