Supplemental Site Characterization Report

Ione Petroleum Contamination Site
Ione, Washington

for
Washington State Department of Ecology and
Science Applications International Corporation

January 3, 2011

GeoEngineers
Earth Science + Technology

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GeoEngineers

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30 YEARS 2010

Supplemental Site Characterization Report

Ione Petroleum Contamination Site
Ione, Washington

File No. 0504-058-00

January 3, 2011

Prepared for:

Washington State Department of Ecology
Toxics Cleanup Program
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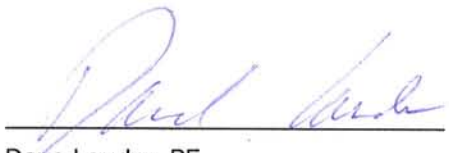

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1.0 INTRODUCTION

This supplemental report presents results of additional site characterization activities conducted between November 1, 2010 and November 4, 2010 at a site referred to as the Ione Petroleum Contamination Site located near Ione, Washington. The approximate location of the site is presented in the Vicinity Map, Figure 1. The site was the subject of previous site characterization activities, the results of which are presented in GeoEngineers' report titled "Site Characterization Report, Ione Petroleum Contamination Site, Ione, Washington", dated October 14, 2010.

In addition to the four properties described in the Site Characterization Report, vacant property owned by Mr. John Doyle, located east of the Cabin Grill property, now encompasses the "Site." This property will be included as part of the "Vacant Property" as described in the Site Characterization Report, as Mr. Doyle owns the vacant properties both north and east of the Cabin Grill. The site is located near the intersection of State Route 31 and Greenhouse/Dewitt Roads. The site and areas of interest are shown in the Site Plan, Figure 2.

The activities described in this supplemental report were conducted to provide additional information regarding the nature and extent of petroleum contamination of soil and groundwater at the site, particularly areas cross-gradient and down-gradient of the Cabin Grill, and provide information regarding the characteristics of the unconfined aquifer underlying the site. These activities were prompted by the detection of petroleum hydrocarbons, particularly gasoline-range petroleum hydrocarbons (GRPH) and benzene, toluene, ethylbenzene and total xylenes (BTEX) compounds at concentrations greater than the Model Toxics Control Act (MTCA) Method A cleanup levels in soil and groundwater samples collected from initial cross-gradient and down-gradient monitoring wells MW-3, MW-4 and MW-6.

This report describes the field investigation and chemical analytical results from soil samples collected from the supplemental explorations. Results of groundwater sampling will be presented in the next quarterly groundwater monitoring report for this project. Logs of borings and monitoring wells are presented in Appendix A. Detailed descriptions of field procedures are presented in Appendix B. Analytical reports are presented in Appendix C. Survey data is presented in Appendix D.

2.0 SCOPE OF SERVICES

The purpose of the supplemental activities was to delineate the nature and extent of soil and groundwater contamination cross-gradient and down-gradient of the Cabin Grill. Four groundwater monitoring wells were installed and one exploratory boring was drilled during supplemental field activities. The monitoring wells were installed at locations identified by the Washington State Department of Ecology (Ecology) based on results of the previous site characterization. Specific tasks conducted during this phase included:

- Drilled and abandoned one exploratory boring and drilled, installed, and developed four monitoring wells. The borings were drilled using a hollow-stem auger drill rig to depths ranging from 25 to 50 feet below ground surface (bgs).
- Submitted soil samples to Anatek Laboratories of Spokane, Washington for analysis of GRPH using Northwest Methods NWTPH-Gx, and volatile organic compounds (VOCs) including BTEX, EDB, EDC, MTBE and naphthalene using EPA Method 8260. Two soil samples collected nearest the groundwater table (one above and one below) within each boring were analyzed.
- Subcontracted a licensed surveyor to record elevations and locations of the supplemental boring and monitoring wells.
- Installed groundwater level transducers in monitoring wells MW-3, MW-4 and MW-5. A flow meter also was installed on the distribution line between the Cabin Grill domestic well and the restaurant. The purpose of the transducers and flow meter is to document the potential drawdown effects caused by utilizing the Cabin Grill domestic well on the groundwater table near the monitoring wells.

3.0 FIELD ACTIVITIES

3.1 Exploratory Borings and Monitoring Well Installation

One exploratory boring (B-5) and four supplemental monitoring wells (MW-9 through MW-12) were advanced at the site between November 1, 2010 and November 3, 2010 using a hollow-stem auger drill rig. Ecology selected the exploratory boring and monitoring well locations based on chemical analytical results and groundwater level information obtained from previous sampling events. Soil samples were collected using a standard penetration test (SPT) sampler. Following installation, the monitoring wells were developed on November 4, 2010 by gently surging and bailing to stabilize the filter pack and formation materials surrounding the well screens. Monitoring well and exploratory boring locations are shown on Exploration Locations, Figure 3.

3.1.1 Vacant Property

Monitoring wells MW-9, MW-10 and M-11, and exploratory boring B-5 were advanced on the vacant property to depths ranging from 25 to 50 feet bgs. No sheen was observed and headspace vapors were either not detected or detected at low concentrations (<5 ppm) from soil samples collected from the explorations.

3.1.2 Cabin Grill

Monitoring well MW-12 was advanced on the Cabin Grill property to a depth of about 45 feet bgs. No sheen was observed and headspace vapors were not detected from soil samples collected from the exploration.

3.2 Transducer Installation

The Cabin Grill domestic well was instrumented on December 8, 2010 with a non-invasive ultrasonic flow-meter attached to the exterior surface of the 1-inch diameter PVC pipe located upstream of the pressure tank and filter tanks within the Cabin Grill well house. The flow-meter is a GE Panametrics AT868 with a MadgeTech Process110 Current Recorder datalogger. Data

logging frequency is programmed to record flow at one-minute intervals. Monitoring wells MW-3, MW-4 and MW-5 were instrumented with In-Situ Rugged TROLL 100 pressure transducers set at 41.70, 47.00 and 46.50 feet below top of casing, respectively. Water level pressure transducers are programmed to record depth of water and temperature at one-minute intervals synchronized with the flow-meter on the Cabin Grill domestic well. Additionally, an In-Situ BaroTROLL was installed in MW-3 to record barometric pressure and temperature at one-minute intervals synchronized with the water level pressure transducers and flow-meter and was suspended approximately 2 feet below the top of the casing.

3.3 Surveying

Thomas Dean and Hoskins Inc. (TD&H) surveyed the locations and elevations of the supplemental exploratory boring and monitoring wells on November 10, 2010. Survey data is presented in Appendix D.

4.0 SUBSURFACE CONDITIONS

4.1 Soil Conditions

Subsurface conditions encountered within the supplemental explorations were consistent with the descriptions provided in the Site Characterization Report. The sand unit and the silt and clay unit were encountered within the supplemental explorations as described below.

Loose to medium dense sand with variable silt and gravel content was encountered in the supplemental borings. The sand unit extended from the ground surface to the full depth explored (about 40 feet) in boring B-5, and to depths ranging from about 22 feet bgs in MW-10 to 47 feet bgs in MW-9. The sand unit encountered in the explorations was consistent with geologic descriptions for the outwash-and alluvially-deposited unconfined aquifer of sand and gravel, as described in the Site Characterization Report.

Below the sand unit, soft to stiff silt and clay was encountered at the locations of MW-9 through MW-12. Where encountered, the top of the silt and clay unit was located at depths ranging from about 22 to 47 feet bgs, and extended to the depths explored. The silt and clay unit is consistent with the geologic descriptions for the glaciolacustrine-deposited aquitard of silt and clay, as described in the Site Characterization Report.

Two cross sections, A-A' and B-B', were presented in the Site Characterization Report. Cross Section A-A' has been revised to include results of the supplemental explorations, and is presented in Figure 4, Cross Section A-A'. Cross Section B-B' is presented again in Figure 5. An additional cross section, C-C', was prepared using results of the supplemental explorations, and is presented in Figure 6. Locations of soil and groundwater samples also are shown on the cross sections. The locations of the cross sections are shown in Figure 3.

4.2 Groundwater Conditions

Groundwater was observed at a depth of about 38½ feet bgs in B-5, about 37 feet bgs in MW-9, about 17 feet bgs in MW-10, about 21 feet bgs in MW-11 and about 36½ feet bgs in MW-12 at the time of drilling.

5.0 SOIL CHEMICAL ANALYTICAL RESULTS

5.1 General

During the supplemental investigation, 10 soil samples (two from each exploration) were submitted for analysis. A summary of analytical results from soil samples are presented in Table 1.

5.2 Cabin Grill

5.2.1 Soil Analyses Results

Two samples were submitted from well MW-12. GRPH and VOCs were not detected in either sample. Practical quantitation limits (PQLs) were reported at concentrations less than MTCA Method A unrestricted land use cleanup levels.

5.3 Vacant Property

5.3.1 Soil Analyses Results

Eight soil samples were submitted from boring B-5 and wells MW-10, -11 and -12. GRPH and VOCs were not detected in any of the samples. PQLs were reported at concentrations less than MTCA Method A unrestricted land use cleanup levels.

6.0 CONCLUSIONS

Supplemental soil assessment activities were conducted from November 1 through November 4, 2010 for the site located in Ione, Washington. Soil borings and wells were placed cross-gradient and down-gradient of the Cabin Grill well to define the lateral extent of petroleum contamination in soil and groundwater associated with the release from the Airport Kwik Stop. Subsurface conditions encountered within supplemental explorations were consistent with conditions encountered within previous explorations, and consisted of sand underlain by silt and clay. Soil does not appear to be contaminated at the exploration locations. Groundwater quality data will be provided in an upcoming report.

7.0 LIMITATIONS

We have prepared this report for the exclusive use of the Science Applications International Corporation, Washington State Department of Ecology and their authorized agents for the Ione Petroleum Contamination Site located in Ione, Washington.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. The conclusions and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty or other conditions, express or implied, should be understood.

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Please refer to the Appendix E titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

TABLES

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Table 1

Summary of Volatile Organic Compounds Analytical Results - Supplemental Exploration Phase Soil Samples[1]

Ione Petroleum Contamination
Ione, Washington

Analyte	Units	MTCA Method A Cleanup Level	Sample Number / Date / Boring Number / Depth	101105046-003 11/01/10 MW-9 33.5	101105046-003 11/01/10 MW-9 38.5	101105046-006 11/02/10 MW-10 13.5	101105046-006 11/02/10 MW-10 18.5	101105046-010 11/02/10 MW-11 18.5	101105046-010 11/02/10 MW-11 23.5	101105046-015 11/03/10 MW-12 33.5	101105046-015 11/03/10 MW-12 38.5	101105046-020 11/03/10 B-5 33.5	101105046-020 11/03/10 B-5 38.5
GRPH[2]	mg/kg	30		<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Volatile Organic Compounds[3]													
1,1,1,2-Tetrachloroethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,1,1-Trichloroethane	mg/kg	2		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,1,2,2-Tetrachloroethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,1,2-Trichloroethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,1-Dichloroethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,1-Dichloroethene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,1-Dichloropropene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,2,3-Trichlorobenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,2,3-Trichloropropane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,2,4-Trichlorobenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,2,4-Trimethylbenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,2-Dibromo-3-chloropropane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,2-Dibromoethane (EDB)	mg/kg	0.005		NA	<0.001	<0.001	NA	<0.001	NA	<0.001	NA	<0.001	NA
1,2-Dichlorobenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,2-Dichloroethane (EDC)	mg/kg	NE		NA	<0.005	<0.005	NA	<0.005	NA	<0.005	NA	<0.005	NA
1,2-Dichloropropane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,3,5-Trimethylbenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,3-Dichlorobenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,3-Dichloropropane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
1,4-Dichlorobenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
2,2-Dichloropropane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
2-Chlorotoluene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
2-Hexanone	mg/kg	NE		NA	<.1005	<.10675	NA	<.1085	NA	<.11475	NA	<0.11725	NA
4-Chlorotoluene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Acetone	mg/kg	NE		NA	<.1005	<.10675	NA	<.1085	NA	<.11475	NA	<0.11725	NA
Acrylontrile	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Benzene	mg/kg	0.03		NA	<0.005	<0.005	NA	<0.005	NA	<0.005	NA	<0.005	NA
Bromobenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Bromochloromethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Bromodichloromethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Bromoform	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Bromomethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Carbon disulfide	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Carbon Tetrachloride	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Chlorobenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Chloroethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Chloroform	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Chloromethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
cis-1,2-Dichloroethene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
cis-1,3-Dichloropropene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Dibromochloromethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Dibromomethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA

Analyte	Units	MTCA Method A Cleanup Level	Sample Number Date Boring Number Depth	101105046-003 11/01/10 MW-9 33.5	101105046-003 11/01/10 MW-9 38.5	101105046-006 11/02/10 MW-10 13.5	101105046-006 11/02/10 MW-10 18.5	101105046-010 11/02/10 MW-11 18.5	101105046-010 11/02/10 MW-11 23.5	101105046-015 11/03/10 MW-12 33.5	101105046-015 11/03/10 MW-12 38.5	101105046-020 11/03/10 B-5 33.5	101105046-020 11/03/10 B-5 38.5
Dichlorodifluoromethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Ethylbenzene	mg/kg	6		NA	<0.005	<0.005	NA	<0.005	NA	<0.005	NA	<0.005	NA
Hexachlorobutadiene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Isopropylbenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
m,p-Xylene	mg/kg	9[4]		NA	<0.01	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA
Methyl ethyl ketone (MEK)	mg/kg	NE		NA	<.1005	<.10675	NA	<.1085	NA	<.11475	NA	<0.11725	NA
Methyl isobutyl ketone (MIBK)	mg/kg	NE		NA	<.1005	<.10675	NA	<.1085	NA	<.11475	NA	<0.11725	NA
Methylene chloride	mg/kg	0.02		NA	<0.02	<0.02	NA	<0.02	NA	<0.02	NA	<0.02	NA
Methylt buytl ether (MTBE)	mg/kg	0.1		NA	<0.01	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA
Naphthalene	mg/kg	5		NA	<0.005	<0.005	NA	<0.005	NA	<0.005	NA	<0.005	NA
n-Butylbenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
n-Propylbenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
o-Xylene	mg/kg	9[4]		NA	<0.005	<0.005	NA	<0.005	NA	<0.005	NA	<0.005	NA
p-Isopropyltoluene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
sec-Butylbenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Styrene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
tert-Butylbenzene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Tetrachloroethene	mg/kg	0.05		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Toluene	mg/kg	7		NA	<0.005	<0.005	NA	<0.005	NA	<0.005	NA	<0.005	NA
trans-1,2-Dichloroethene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
trans-1,3-Dichloropropene	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Trichloroethene	mg/kg	0.03		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Trichlorofluoromethane	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA
Vinyl chloride	mg/kg	NE		NA	<.0201	<.02135	NA	<.0217	NA	<.02295	NA	<.02345	NA

Notes:

[1]Chemical analyses conducted by Anatek Labs, Inc. located in Spokane, Washington.

[2]Gasoline-range petroleum hydrocarbons (GRPH) analyzed using Northwest Method NWTPH-Gx.

[3]Volatile organic compounds analyzed using EPA Method 8260B.

[4]MTCA Method A cleanup level is 9 mg/kg for total xylenes (concentration of m,p-xylene + concentration of o-xylene)

mg/kg = milligrams per kilogram; NE = not established; MTCA = Model Toxics Control Act; NA = not analyzed

FIGURES

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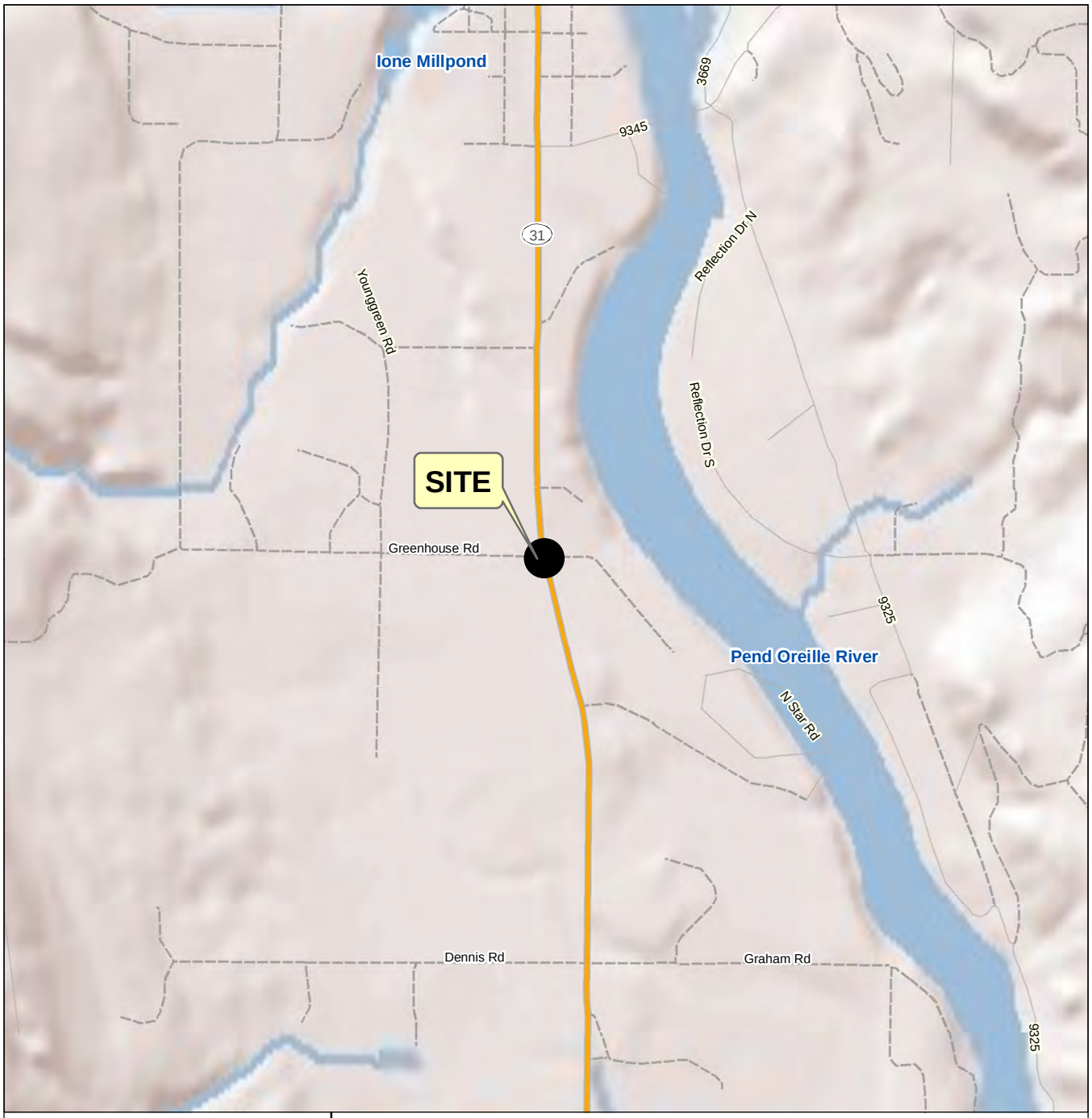

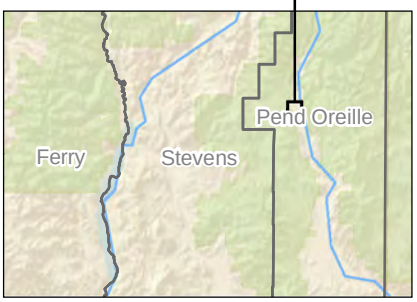

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Vicinity Map

Ione Petroleum Contamination
Ione, Washington

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Figure 1

Office: SPO Path:W:\Spokane\Projects\0\0504058\GIS\0504058GIS_VM_F1.mxd Map Revised: 12/21/2010 CRC

Legend

Ⓦ Existing Water Well

Reference: Bing Maps aerial from ESRI, Online Data Resource Center.
ESRI Data & Maps, Street Maps 2008

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Site Plan

Ione Petroleum Contamination
Ione, Washington

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Figure 2

Map Revised: December 15, 2010

Path:W:\Spokane\Projects\0\05040580\GIS\05040580_SitePlan_F2_add.mxd

OfficeLocation: SPO

Legend

- DP-1 — Direct-Push Boring Number and Approximate Location
- B-1 — Hollow-Stem Auger Boring Number and Approximate Location
- MW-1 — Monitoring Well Number and Approximate Location
- Ⓦ — Existing Water Well
- A — A' — Cross Section

Reference: Bing Maps aerial from ESRI, Online Data Resource Center.
ESRI Data & Maps, Street Maps 2008

N W E S

100 0 100
Feet

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Exploration Locations

Ione Petroleum Contamination
Ione, Washington

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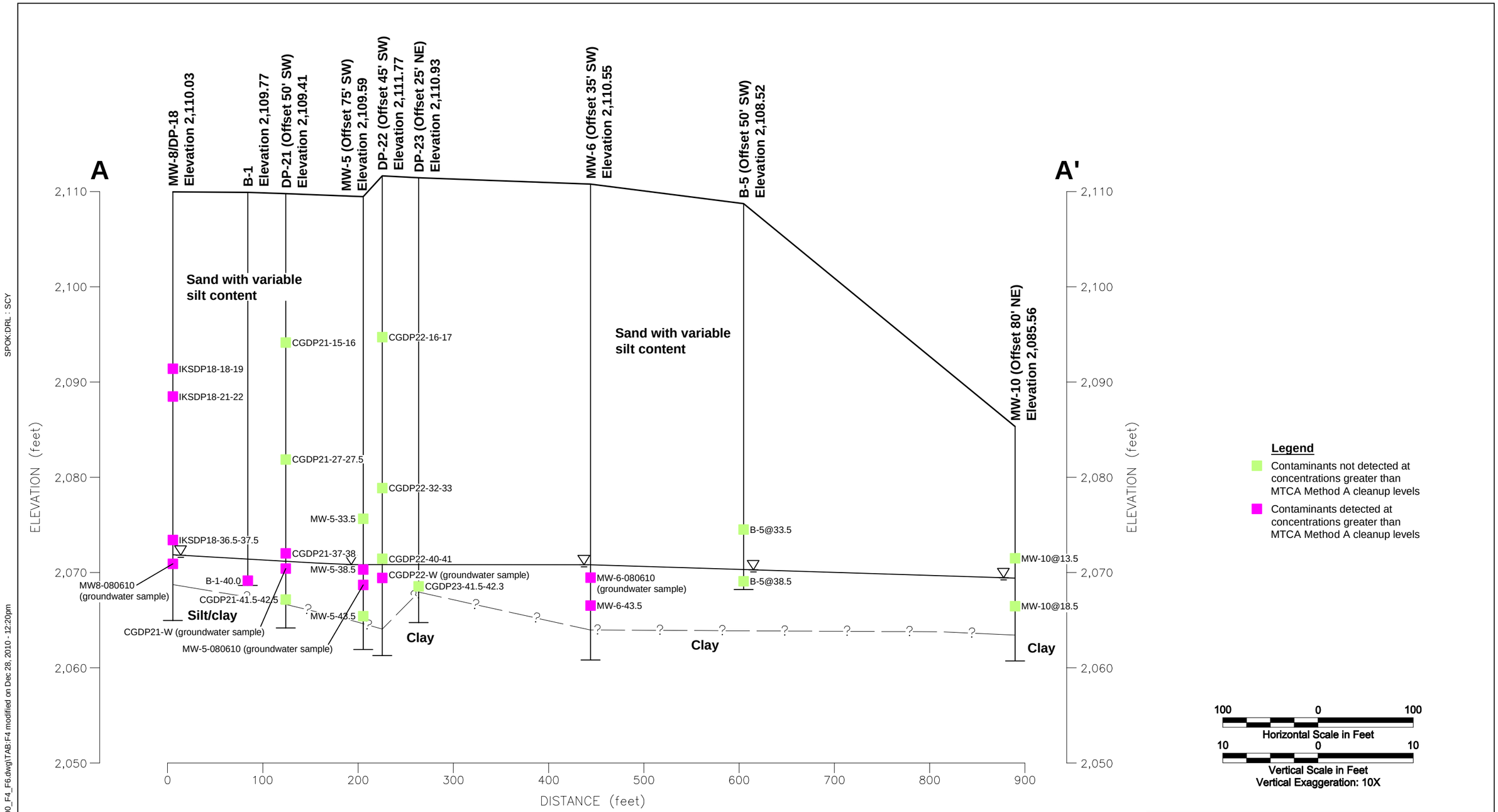
Figure 3

Map Revised: December 16, 2010

Path:W:\Spokane\Projects\0\050405800\GIS\050405800_Exploration_F3_Add.mxd

OfficeLocation: SPO



Notes:
1. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
2. Refer to Figure 3 for location of Cross Section.
3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

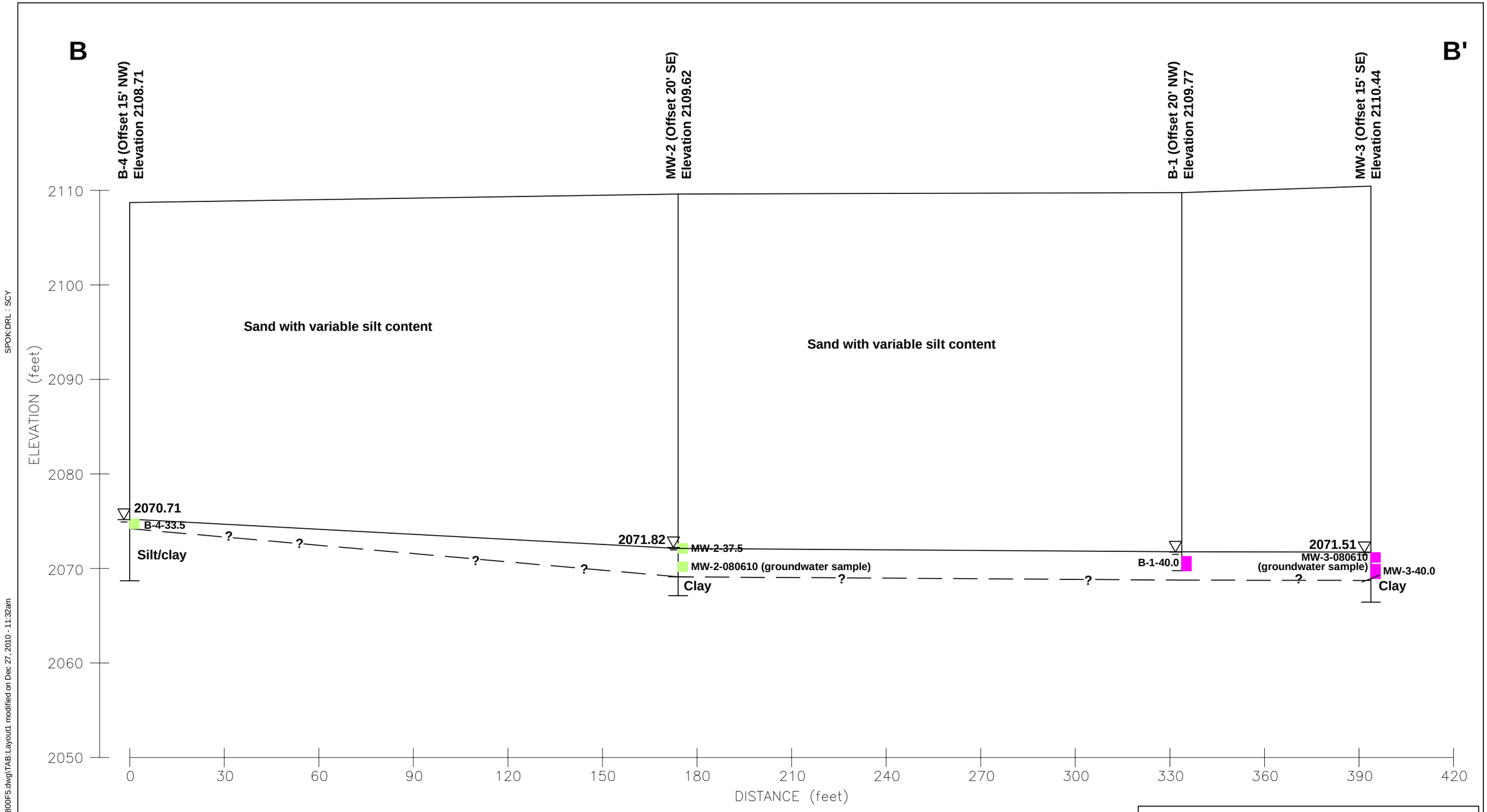
Cross Section A-A'

Ione Petroleum Contamination
Ione, Washington

GeoEngineers

Figure 4

\\spo\projects\0\0504058\CAD\0504058_F4_F6.dwg\TAB:F4 modified on Dec 28, 2010 - 12:20pm
SPOK:DRL : SCY



Notes:
1. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
2. Refer to Figure 3 for location of Cross Section.
3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Legend

Contaminants not detected at concentrations greater than MTCA Method A cleanup levels

Contaminants detected at concentrations greater than MTCA Method A cleanup levels

30 0 30
Horizontal Scale in Feet
10 0 10
Vertical Scale in Feet
Vertical Exaggeration: 3X

Cross Section B-B'

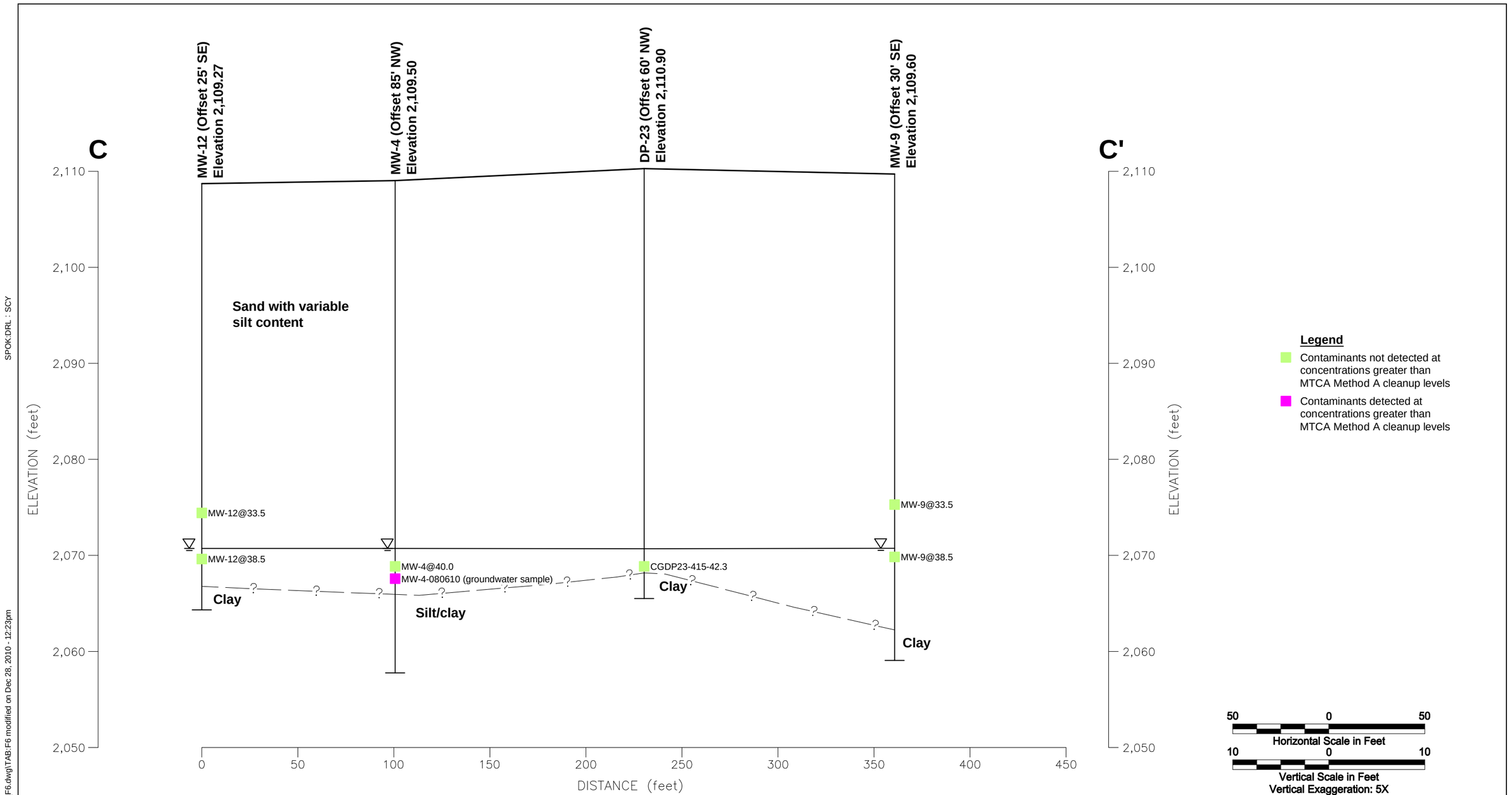
Ione Petroleum Contamination
Ione, Washington

GeoEngineers

Figure 5

SPOK:DRL : SCY

\\spo\projects\00\0504058\CAD\0504058800F5.dwg\TAB:Layout1 modified on Dec. 27, 2010 - 11:32am



Notes:
1. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
2. Refer to Figure 2 for location of Cross Section.
3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Cross Section C-C'

Ione Petroleum Contamination
Ione, Washington

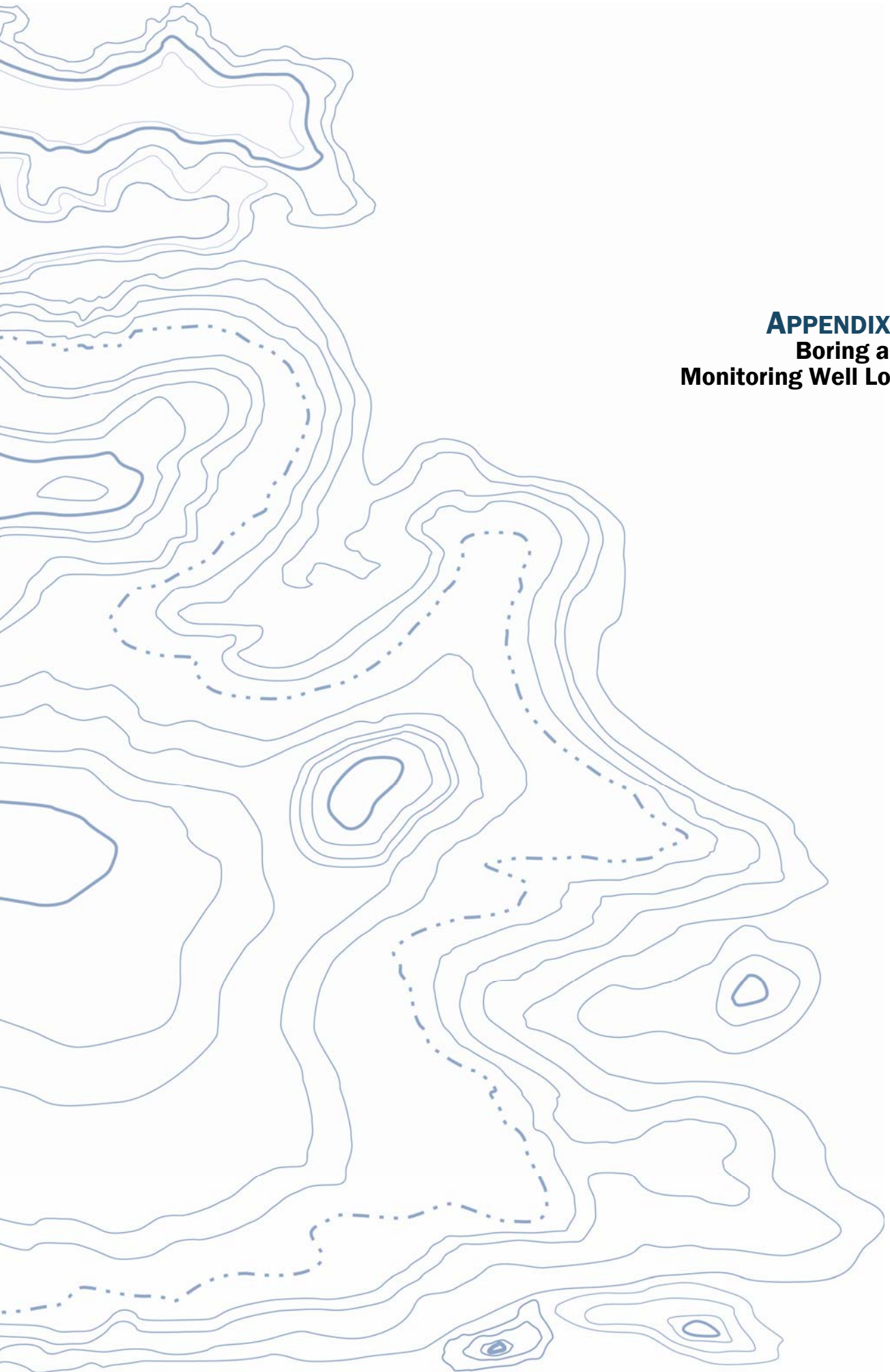
GeoEngineers

Figure 6

SPOK-DRL : SCY
\\spo\projects\0\0504058\CAD\0504058_F4_F6.dwg\TAB:F6 modified on Dec 28, 2010 - 12:23pm

APPENDICES

GeoEngineers



APPENDIX A
Boring and Monitoring Well Logs

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	CC	Cement Concrete
	AC	Asphalt Concrete
	CR	Crushed Rock/ Quarry Spalls
	TS	Topsoil/ Forest Duff/Sod

Measured groundwater level in exploration, well, or piezometer

Groundwater observed at time of exploration

Perched water observed at time of exploration

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata or geologic units

Approximate location of soil strata change within a geologic soil unit

Material Description Contact

Distinct contact between soil strata or geologic units

Approximate location of soil strata change within a geologic soil unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

A "P" indicates sampler pushed using the weight of the drill rig.

Laboratory / Field Tests

%F	Percent fines
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
OC	Organic content
PM	Permeability or hydraulic conductivity
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
NT	Not Tested

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

KEY TO EXPLORATION LOGS

GeoEngineers

FIGURE A-1

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	CC	Cement Concrete
	AC	Asphalt Concrete
	CR	Crushed Rock/ Quarry Spalls
	TS	Topsoil/ Forest Duff/Sod

Measured groundwater level in exploration, well, or piezometer

Groundwater observed at time of exploration

Perched water observed at time of exploration

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata or geologic units

Approximate location of soil strata change within a geologic soil unit

Material Description Contact

Distinct contact between soil strata or geologic units

Approximate location of soil strata change within a geologic soil unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

A "P" indicates sampler pushed using the weight of the drill rig.

Laboratory / Field Tests

%F	Percent fines
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
OC	Organic content
PM	Permeability or hydraulic conductivity
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
NT	Not Tested

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

KEY TO EXPLORATION LOGS

GeoEngineers

FIGURE A-1

Drilled: Start 11/3/2010 End 11/3/2010	Total Depth (ft): 40	Logged By: KLR Checked By: DRL	Driller: GeoEngineers, Inc.	Drilling Method: Hollow Stem Auger	
Surface Elevation (ft): 2108.5 Vertical Datum: NAVD88		Hammer Data: 140 (lbs) / 30 (in) Drop		Drilling Equipment: CME 75	
Easting (X): 2466829.296 Northing (Y): 643264.847		System Datum: State Plane, Washington North Zone NAD83		Groundwater: Date Measured 11/3/2010; Depth to Water (ft) 38.5; Elevation (ft)	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample / Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						SP-SM	Brown fine sand with silt (medium dense, moist)			
2105	5										
2100	10										
2095	15										
2090	20										
2085	25	15	13	1					0.0	NS	Began sampling at approximately 23½ foot depth
2080	30	16	12	2			SP	Grayish brown fine to medium sand with trace silt (medium dense, moist)	0.0	NS	
2075	35	16	9	3 CA			SP	Brown fine sand with trace silt (loose, moist)	0.0	NS	B-5@33.5

Note: Please see Figure A-1 for explanation of symbols

Log of Boring B-5

GeoEngineers

Project: Ione Petroleum Contamination
Project Location: Ione, Washington
Project Number: 0504-058-00

Figure A-2
Sheet 1 of 2

Spokane: Date:12/15/10 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\0504058_SUPPLEMENTAL.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample / Sample Name Testing	FIELD DATA: Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	35										
2070							SW	Grayish brown fine to coarse sand with gravel and trace silt (medium dense, wet)			
			23	4 CA					0.0	NS	B-5@38.5
	40										

Note: Please see Figure A-1 for explanation of symbols

Log of Boring B-5 (continued)

GeoEngineers

Project: Ione Petroleum Contamination
Project Location: Ione, Washington
Project Number: 0504-058-00

Figure A-2
Sheet 2 of 2

Spokane: Date:12/15/10 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\0504058_SUPPLEMENTAL.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled	Start	End	Total Depth (ft)	Logged By	Driller	Drilling Method
	11/1/2010	11/1/2010	50	KLR / DRL	GeoEngineers, Inc.	Hollow Stem Auger

Hammer Data	Automatic 140 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) / Vertical Datum	2109.6 NAVD88	Top of Casing Elevation (ft)	2109.43
Easting (X) / Northing (Y)	2466611.702 643752.492	Horizontal Datum	State Plane, Washington North Zone NAD83

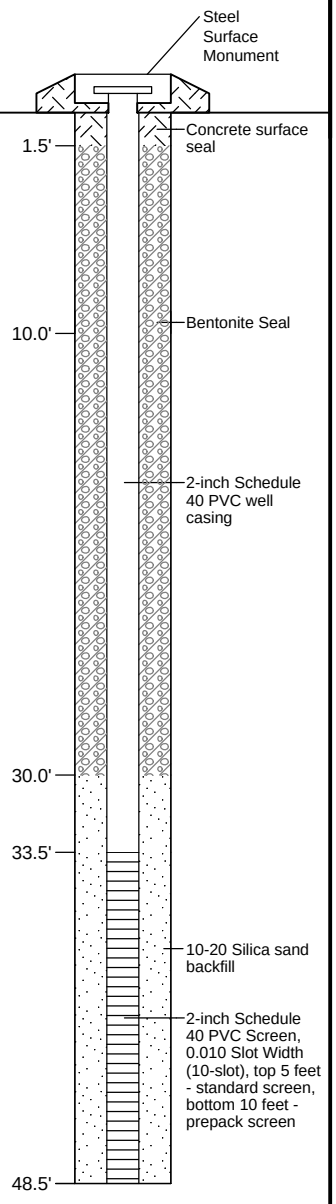
A 2 (in) well was installed on 11/1/2010 to a depth of 48.5 (ft).

Groundwater	Depth to Water (ft)	Elevation (ft)
Date Measured		
11/10/2010	38.43	2071.01

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
	0							SM	Brown silty fine sand (loose, moist)		
2105	5	13	6		1					NS	0.0
								SP-SM	Brown fine sand with silt (loose, moist)		
2100	10		8		2					NS	0.0
2095	15		6		3					NS	0.0
								SM	Brown silty fine sand (loose, moist)		
2090	20		5		4					NS	0.0
								SP-SM	Brown fine sand with silt (medium dense, moist)		
2085	25	14	15		5					NS	0.0
2080	30	17	12		6					NS	0.0
								SW	Grayish brown fine to coarse sand with gravel and trace silt (medium dense, moist to wet)		
2075	35	16	18		7 CA				MW-9@33.5	NS	0.0
2070	40		10		8 CA	▽ ▼			MW-9@38.5	NS	0.0
2065	45	16	12		9					NS	0.0
								CL	Gray clay (soft, wet)		
2060	50	18	2		10					NS	0.0

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well MW-9

GeoEngineers

Project: Ione Petroleum Contamination
Project Location: Ione, Washington
Project Number: 0504-058-00

Figure A-3
Sheet 1 of 1

Spokane: Date:12/15/10 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\0504058_SUPPLEMENTAL.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

Drilled	Start	End	Total Depth (ft)	Logged By	Driller	Drilling Method
	11/2/2010	11/2/2010	25	KLR / DRL	GeoEngineers, Inc.	Hollow Stem Auger

Hammer Data	Automatic 140 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) / Vertical Datum	2085.9 NAVD88	Top of Casing Elevation (ft)	2085.56
Easting (X) / Northing (Y)	2467276.698 643155.547	Horizontal Datum	State Plane, Washington North Zone NAD83

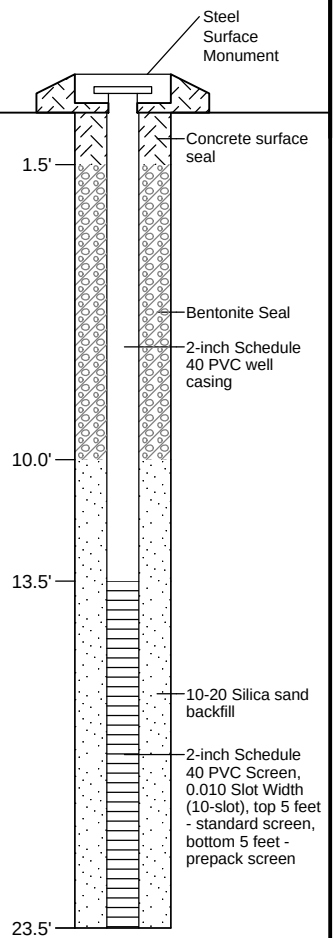
A 2 (in) well was installed on 11/2/2010 to a depth of 23.5 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
11/10/2010	15.96	2069.60

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
2085	0							SP-SM	Brown fine sand with silt (medium dense, moist)		
		16	14		1					NS	0.0
2080	5										
			6		2					NS	0.1
2075	10										
		15	8		3 CA			SW-SM	Brown fine to coarse sand with silt and gravel (loose, moist) MW-10@13.5	NS	0.1
2070	15							ML	Gray silt with sand (soft, wet)		
		9	1		4 CA				MW-10@18.5	NS	0.0
2065	20							CL	Gray clay (soft, wet)		
		16	3		5					NS	0.0
	25										

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well MW-10

GeoEngineers

Project: Ione Petroleum Contamination
Project Location: Ione, Washington
Project Number: 0504-058-00

Figure A-4
Sheet 1 of 1

Spokane: Date:12/15/10 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\0504058_SUPPLEMENTAL.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

Drilled	Start	End	Total Depth (ft)	Logged By	Driller	Drilling Method
	11/2/2010	11/2/2010	30	KLR / DRL	GeoEngineers, Inc.	Hollow Stem Auger

Hammer Data	Automatic 140 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	2093.6 NAVD88	Top of Casing Elevation (ft)	2093.44
Easting (X) Northing (Y)	2467079.611 643377.431	Horizontal Datum	State Plane, Washington North Zone NAD83

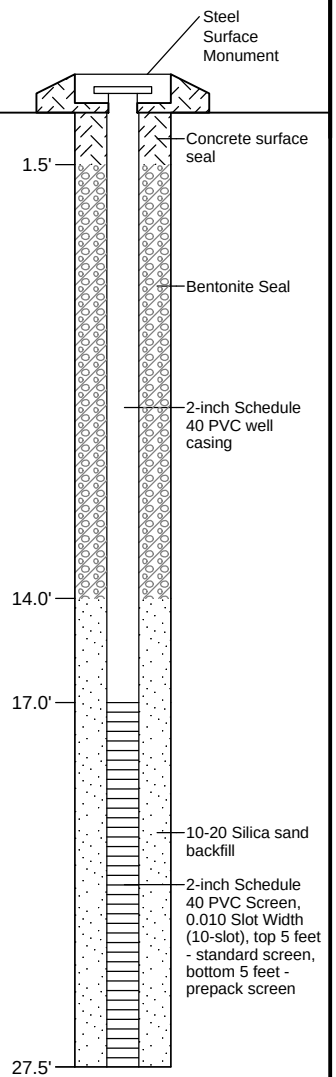
A 2 (in) well was installed on 11/2/2010 to a depth of 27.5 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
11/10/2010	23.33	2070.11

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
	0							SM	Silty fine sand (loose, moist)		
2090	5	16	6		1					NS	0.0
								SP-SM	Brown fine sand with silt (loose, moist)		
2085	10	16	4		2					NS	0.0
								SP	Brown fine to medium sand with trace silt (loose, moist)		
2080	15	8	6		3					NS	0.0
2075	20		12		4 CA	▽			MW-11@18.5	NS	0.0
								SW	Brown fine to course sand with trace silt (medium dense, wet)		
2070	25	12	12		5 CA	▼			MW-11@23.5	NS	0.0
								CL	Gray clay (soft, wet)		
2065	30		3		6					NS	0.0

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well MW-11

GeoEngineers

Project: Ione Petroleum Contamination
Project Location: Ione, Washington
Project Number: 0504-058-00

Figure A-5
Sheet 1 of 1

Spokane: Date:12/15/10 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\0504058_SUPPLEMENTAL.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

Drilled	Start	End	Total Depth (ft)	Logged By	Driller	Drilling Method
	11/3/2010	11/3/2010	45	KLR / DRL	GeoEngineers, Inc.	Hollow Stem Auger

Hammer Data	Automatic 140 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	2109.3 NAVD88	Top of Casing Elevation (ft)	2108.87
Easting (X) Northing (Y)	2466362.883 643255.389	Horizontal Datum	State Plane, Washington North Zone NAD83

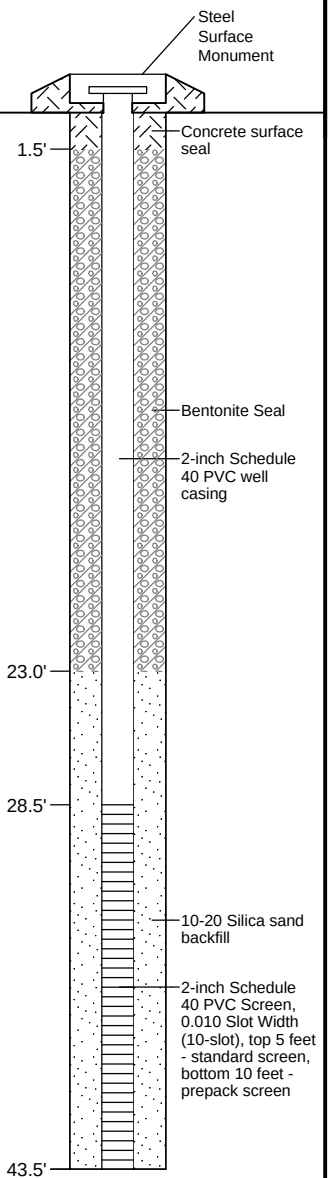
A 2 (in) well was installed on 11/3/2010 to a depth of 43.5 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
11/10/2010	37.98	2070.89

Notes:

Depth (feet)	Elevation (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
0								ML	Brown silt with sand (stiff, moist)		
5	2105	15	12		1					NS	0.0
10	2100							SP	Grayish brown fine sand with trace silt (loose, moist)		
15	2095										
20	2090										
25	2085	16	7		2					NS	0.0
30	2080	15	14		3			SP	Grayish brown fine to medium sand with trace silt (medium dense, moist)	NS	0.0
35	2075		15		4 CA	▽			MW-12@33.5	NS	0.0
40	2070	4	20		8 CA	▼			MW-12@38.5	NS	0.0
45	2065		5		6			CL	Gray clay (medium stiff, wet)	NS	0.0

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

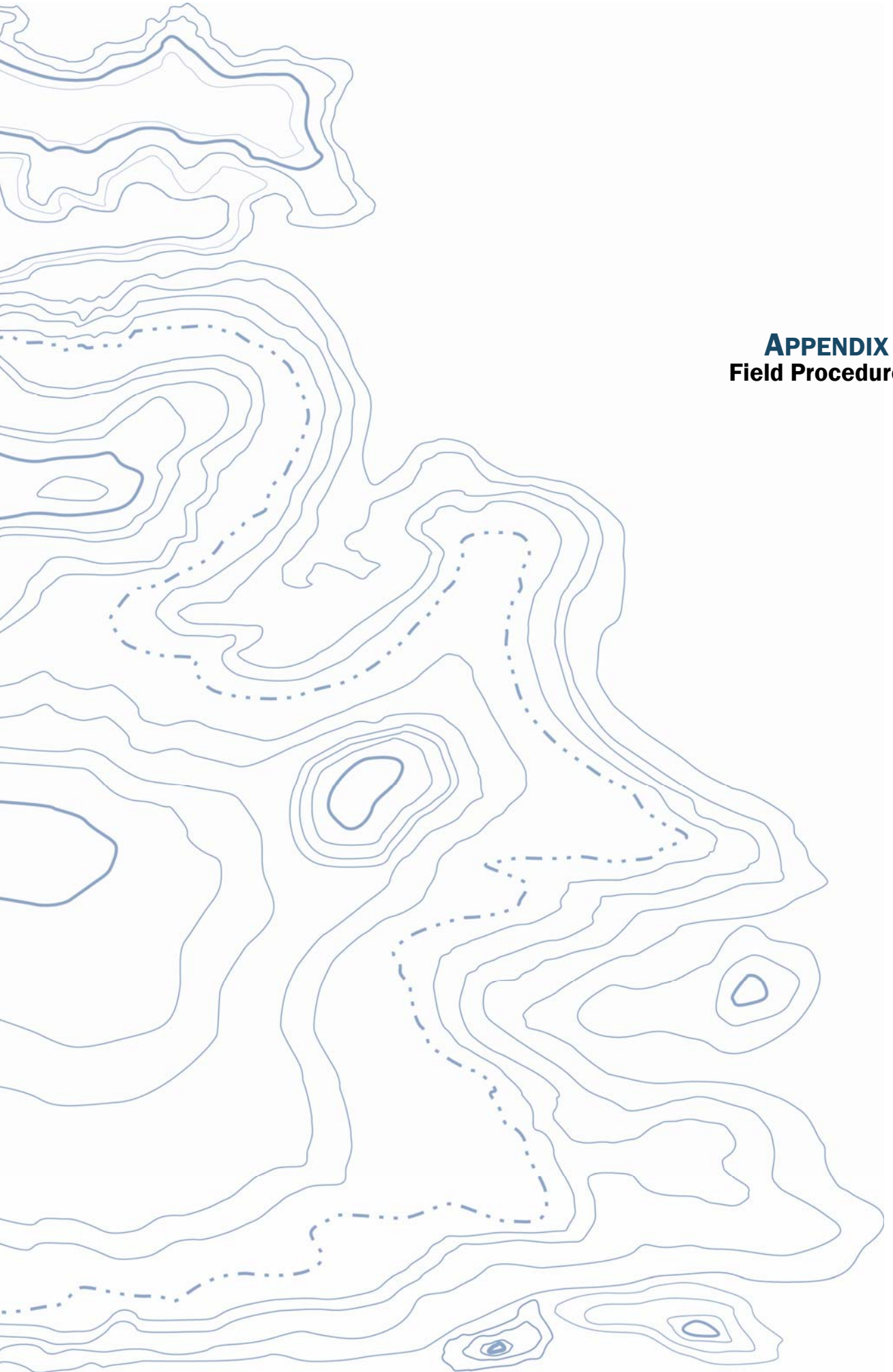
Log of Monitoring Well MW-12

GeoEngineers

Project: Ione Petroleum Contamination
Project Location: Ione, Washington
Project Number: 0504-058-00

Figure A-6
Sheet 1 of 1

Spokane: Date:12/15/10 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\0504058_SUPPLEMENTAL.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL



APPENDIX B
Field Procedures

APPENDIX B
FIELD PROCEDURES

Field Explorations

GeoEngineers contacted the One-Call Utility Notification Center, in accordance with Washington State law, and the Pend Oreille County Public Utility District (PUD) before drilling.

Following clearance of utilities, subsurface conditions at the Site were explored from November 1 to November 3, 2010 by:

- Advancing one exploratory boring and obtaining soil samples;
- Installing four new monitoring wells from which soil samples were collected.

The approximate exploration locations are shown in Figure 3.

Soil Sampling from Borings

Soil borings were completed using hollow-stem auger (HSA) drilling techniques by a licensed driller. Subsurface soil samples were obtained using standard penetration test (SPT) samplers.

Each boring was continuously monitored by a geologist from our firm who observed and classified the soil encountered, and prepared a detailed log of each boring. Soil encountered in the borings was classified in the field in general accordance with ASTM International (ASTM) D-2488, the Standard Practice for Classification of Soils, Visual-Manual Procedure, which is summarized in Figure A-1. A Log of hollow-stem boring is presented in Figures A-2. Preservation of VOC samples was completed in accordance with Ecology Memo 5, document number 04-09-087. Sample containers were labeled and placed into an ice chest containing ice/ice packs. Soil samples for VOCs analyses were obtained consistent with EPA Method 5035A. Chain-of-custody procedures were followed during transport of the soil samples.

Sampling equipment was decontaminated between each sampling attempt for either drilling method. Samples were obtained using either a decontaminated soil knife or new, clean nitrile glove and placed into 4-ounce glass sample jars with Teflon lids.

Samples were placed in a cooler with ice and delivered to the analytical laboratory; standard chain-of-custody procedures were observed during transport of the samples to the laboratory.

Field Screening Methods

A GeoEngineers field geologist performed field screening tests on selected soil samples from the explorations. Field screening results were used to aid in the selection of soil samples for chemical analysis. Screening methods included (1) visual examination, (2) water sheen screening, and (3) headspace vapor screening using a photo-ionization detector (PID).

Monitoring Well Construction, Development, and Surveying

Monitoring wells MW-9 through MW-12 were constructed in accordance with WAC 173-160, Section 400, Washington State Resource Protection Well Construction Standards. Monitoring well installation was observed by a GeoEngineers field geologist, who maintained a detailed log of the

materials and depths of the well. Well construction details, including the depths of the well screen and filter packs are shown on Logs of Monitoring Wells, Figures A-3 through A-6.

The four monitoring wells were constructed using 2-inch-diameter polyvinyl chloride (PVC) well casing. The annular space in each well was sealed between the top of the filter pack and the ground surface with bentonite to prevent infiltration of groundwater into the well bore from shallower zones. A lockable compression-type cap was installed in the top of the PVC well casing. A flush-mount above-grade monument equipped with a watertight cover was installed to protect the PVC well casing. A concrete surface seal was placed around the monument at the ground surface to divert surface water away from the well location.

Monitoring wells MW-9 through MW-12 were developed on November 4, 2010 to remove water introduced into the well during drilling, stabilize the filter pack and formation materials surrounding the well screen, and restore the hydraulic connection between the well screen and the surrounding soil. Each well screen was gently surged and water was removed with a surge block and disposable bailer several times during the development process.

The elevation of the top of each monitoring well casing and the ground surface of each well was surveyed by Thomas Dean and Hoskins Inc., on November 10, 2010. A survey reference notch was established on the north side of each monitoring well casing. Horizontal locations of wells are referenced to the NAD 83 datum. Elevations are referenced to NAVD88 datum.

Decontamination Procedures

The objective of the decontamination procedure is to minimize the potential for cross-contamination between sample locations.

A designated decontamination area was established for decontamination of drilling equipment and reusable sampling equipment. Drilling equipment was cleaned using high-pressure/low-volume cleaning equipment.

Sampling equipment was decontaminated in accordance with the following procedures before each sampling attempt or measurement.

1. Brush equipment with a nylon brush to remove large particulate matter.
2. Rinse with potable tap water.
3. Wash with non-phosphate detergent solution (Liquinox® and potable tap water).
4. Rinse with potable tap water.
5. Rinse with distilled water.

Handling of Investigation-Derived Waste

Investigation Derived Waste (IDW), which consists of mainly drill cuttings and decontamination/purge water, typically was placed in DOT-approved 55-gallon drums. Each drum was labeled with the project name, exploration number, general contents, and date. The drummed IDW was stored onsite pending analysis and disposal.

Disposable items, such as sample tubing, disposable bailers, bailer line, gloves and protective overalls, paper towels, etc., were placed in plastic bags after use and deposited in trash receptacles for disposal.

APPENDIX C
Laboratory Reports

APPENDIX C
LABORATORY REPORTS

DATA Quality Assessment Summary
NWTPH-Gx
Volatile Organic Compounds (VOCs) by EPA 8260B

Anatek Laboratory SDG	Samples Validated (Bold indicates the sample was qualified)
101105046 (soil samples)	MW-9 @ 28.5, MW-9 @ 33.5, MW-9 @ 38.5, MW-9 @ 43.5, MW-10 @ 8.5, MW-10 @ 13.5, MW-10 @ 18.5, MW-10 @23.5, MW-11 @ 13.5, MW-11 @ 18.5, MW-11 @ 23.5, MW-11 @ 28.5, MW-12 @ 23.5, MW-12 @ 28.5, MW-12 @ 33.5, MW-12 @ 38.5, MW-12 @ 43.5, B-5 @ 23.5, B-5 @ 28.5, B-5 @ 33.5, B-5 @ 38.5

This report documents the results of an EPA level 2b data validation of analytical data from the analyses of soil samples and the associated laboratory and field quality control (QC) samples. The review included the following:

- Chain of Custody
- Holding Times
- Surrogates
- Method and Trip Blanks
- Laboratory Control Samples
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory and Field Duplicates

Data Package Completeness

Anatek Labs, Inc., located in Spokane, Washington, analyzed the samples evaluated as part of this data validation review. The laboratory provided all required deliverables for the validation according to the National Functional Guidelines. The laboratory followed adequate corrective action processes and all identified anomalies were discussed in the case narrative.

The following sections discuss the data. Based on the review, qualification of the laboratory data was performed in association with holding time outliers and method blank contamination.

OBJECTIVE

The objective of the data validation was to review laboratory analytical procedures and quality control (QC) results to evaluate whether:

- The samples were analyzed using well-defined and acceptable methods that provide detection limits below applicable regulatory criteria;
- The precision and accuracy of the data are well defined and sufficient to provide defensible data; and

- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

The environmental samples were analyzed by one or more of the analytical methods listed in the title of this appendix.

DATA QUALITY ASSESSMENT SUMMARY

The results for each of the QC elements are summarized below. The data assessment was performed using guidance in the USEPA Contract Laboratory Program *National Functional Guidelines for Inorganic Data Review* (USEPA 2002) and USEPA Contract Laboratory Program *National Functional Guidelines for Organic Data Review* (USEPA 2008).

Chain-of-Custody Documentation

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. There were no anomalies noted on the COC forms; proper COC protocols appear to have been followed for this sampling event.

Holding Times

The holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for all analyses.

Surrogate Recoveries

A surrogate compound is a compound that is chemically similar to the analytes of interest, but unlikely to be found in any environmental sample. Surrogates are used for organic analyses and are added to all samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added at a known concentration and percent recoveries are calculated following analysis. All surrogate recoveries for field samples were within the laboratory control limits.

Method and Trip Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. Method blanks were analyzed with each batch of samples, at a frequency of one per twenty samples. For all sample batches, method blanks for all applicable methods were analyzed at the required frequency.

If a compound was found at a measurable concentration in the method blank, an “action level” for this compound was assigned to the associated batch samples by multiplying the concentration by five. This action level is then multiplied by any dilutions the sample may have gone through in the laboratory extraction process.

Trip Blanks are carried with the field sampler to and from the site, and these are analyzed to ensure that the transportation environment does not introduce measurable concentrations of the

analytes of interest. Trip Blanks are usually analyzed at the frequency of one per every sample cooler.

None of the analytes of interest were detected above the reporting limits in any of the method or trip blanks.

Matrix Spikes/Matrix Spike Duplicates (MS/MSD)

Because the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis. One aliquot of sample is analyzed in the normal manner, and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery (%R) is calculated. Matrix spike duplicates (MSD) analyses are generally performed for organic analyses as a precision check. For some organic analytical methods, such as NWTPH-Dx, a laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) sample set is performed in lieu of a MS/MSD analysis.

For inorganics methods, the matrix spike (referred to as a "spiked sample") is typically followed by a post spike sample if any element recoveries were outside the control limits in the "spike sample".

Matrix spike analyses should be performed once per analytical batch or every twenty field samples, whichever is more frequent. The recovery criteria for matrix spikes and laboratory control samples are specified in the laboratory documents as are the relative percent difference values. The frequency requirements were met for all analyses and the %R/RPD values were within the proper control limits.

Laboratory Control Samples/ Laboratory Control Sample Duplicates (LCS/LCSD)

A laboratory control sample is essentially a blank sample that is spiked with a known amount of analyte concentration and analyzed. It is to be treated much like a matrix spike, without the possibility for matrix interference. As there is no actual sample matrix in the analysis, the analytical expectations for accuracy and precision are usually more rigorous and qualification would apply to all samples in the batch, instead of the parent sample only.

Laboratory control sample analyses should be performed once per analytical batch or every twenty field samples, whichever is more frequent. The recovery criteria for laboratory control samples are specified in the laboratory documents as are the relative percent difference values. The frequency requirements were met for all analyses, and the %R/RPD values were within the proper control limits.

Field Replicates/Duplicates

Field duplicate samples were not collected for the supplemental soil samples.

OVERALL ASSESSMENT

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate, LCS/LCSD, and MS/MSD %R values.

Precision was acceptable, as demonstrated by the laboratory duplicate, LCS/LCSD and MS/MSD RPD and absolute difference values.

No data points were qualified as estimated for any reason.

The data are acceptable for use as qualified.

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number 101105046-003 | **Sampling Date** 11/1/2010 | **Date/Time Received** 11/5/2010 3:50 PM
Client Sample ID MW-9 @ 38.5 | **Sampling Time** 1:43 PM | **Extraction Date**
Matrix Soil | **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,1,1-Trichloroethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,1,2-Trichloroethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,1-Dichloroethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,1-Dichloroethene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,1-dichloropropene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,2,3-Trichlorobenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,2,3-Trichloropropane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,2,4-Trichlorobenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,2,4-Trimethylbenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,2-Dibromo-3-chloropropane(DBCP)	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,2-Dibromoethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,2-Dichlorobenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,2-Dichloroethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,2-Dichloropropane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,3,5-Trimethylbenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,3-Dichlorobenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,3-Dichloropropane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
1,4-Dichlorobenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
2,2-Dichloropropane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
2-Chlorotoluene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
2-hexanone	ND	mg/kg	0.1005	11/14/2010	WOZ	EPA 8260B	
4-Chlorotoluene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Acetone	ND	mg/kg	0.1005	11/14/2010	WOZ	EPA 8260B	
Acrylonitrile	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Benzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Bromobenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Bromochloromethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Bromodichloromethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Bromoform	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Bromomethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Carbon disulfide	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Carbon Tetrachloride	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C585; MT:Cert0095

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number	101105046-003	**Sampling Date**	11/1/2010	**Date/Time Received**	11/5/2010 3:50 PM
Client Sample ID	MW-9 @ 38.5	**Sampling Time**	1:43 PM	**Extraction Date**	
Matrix	Soil	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Chlorobenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Chloroethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Chloroform	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Chloromethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
cis-1,2-dichloroethene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
cis-1,3-Dichloropropene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Dibromochloromethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Dibromomethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Dichlorodifluoromethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Ethylbenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Hexachlorobutadiene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Isopropylbenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
m+p-Xylene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Methyl ethyl ketone (MEK)	ND	mg/kg	0.1005	11/14/2010	WOZ	EPA 8260B	
Methyl isobutyl ketone (MIBK)	ND	mg/kg	0.1005	11/14/2010	WOZ	EPA 8260B	
Methylene chloride	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
methyl-t-butyl ether (MTBE)	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Naphthalene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
n-Butylbenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
n-Propylbenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
o-Xylene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
p-isopropyltoluene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
sec-Butylbenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Styrene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
tert-Butylbenzene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Tetrachloroethene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Toluene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
trans-1,2-Dichloroethene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
trans-1,3-Dichloropropene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Trichloroethene	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Trichloroflouromethane	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	
Vinyl Chloride	ND	mg/kg	0.0201	11/14/2010	WOZ	EPA 8260B	

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number	101105046-003	**Sampling Date**	11/1/2010	**Date/Time Received**	11/5/2010 3:50 PM
Client Sample ID	MW-9 @ 38.5	**Sampling Time**	1:43 PM	**Extraction Date**	
Matrix	Soil	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier

Surrogate Data

Sample Number 101105046-003

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260B	103.6	70-130
4-Bromofluorobenzene	EPA 8260B	98.4	70-130
Toluene-d8	EPA 8260B	99.6	70-130

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Client: GEO ENGINEERS
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Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number	101105046-006	**Sampling Date**	11/2/2010	**Date/Time Received**	11/5/2010 3:50 PM
Client Sample ID	MW-10 @ 13.5	**Sampling Time**	11:20 AM	**Extraction Date**	
Matrix	Soil	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,1,1-Trichloroethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,1,2-Trichloroethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,1-Dichloroethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,1-Dichloroethene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,1-dichloropropene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,2,3-Trichlorobenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,2,3-Trichloropropane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,2,4-Trichlorobenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,2,4-Trimethylbenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,2-Dibromo-3-chloropropane(DBCP)	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,2-Dibromoethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,2-Dichlorobenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,2-Dichloroethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,2-Dichloropropane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,3,5-Trimethylbenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,3-Dichlorobenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,3-Dichloropropane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
1,4-Dichlorobenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
2,2-Dichloropropane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
2-Chlorotoluene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
2-hexanone	ND	mg/kg	0.10675	11/14/2010	WOZ	EPA 8260B	
4-Chlorotoluene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Acetone	ND	mg/kg	0.10675	11/14/2010	WOZ	EPA 8260B	
Acrylonitrile	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Benzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Bromobenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Bromochloromethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Bromodichloromethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Bromoform	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Bromomethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Carbon disulfide	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Carbon Tetrachloride	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Chlorobenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	

Anatek Labs, Inc.

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number 101105046-006 **Sampling Date** 11/2/2010 **Date/Time Received** 11/5/2010 3:50 PM
Client Sample ID MW-10 @ 13.5 **Sampling Time** 11:20 AM **Extraction Date**
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Chloroethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Chloroform	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Chloromethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
cis-1,2-dichloroethene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
cis-1,3-Dichloropropene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Dibromochloromethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Dibromomethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Dichlorodifluoromethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Ethylbenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Hexachlorobutadiene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Isopropylbenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
m+p-Xylene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Methyl ethyl ketone (MEK)	ND	mg/kg	0.10675	11/14/2010	WOZ	EPA 8260B	
Methyl isobutyl ketone (MIBK)	ND	mg/kg	0.10675	11/14/2010	WOZ	EPA 8260B	
Methylene chloride	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
methyl-t-butyl ether (MTBE)	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Naphthalene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
n-Butylbenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
n-Propylbenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
o-Xylene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
p-isopropyltoluene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
sec-Butylbenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Styrene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
tert-Butylbenzene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Tetrachloroethene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Toluene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
trans-1,2-Dichloroethene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
trans-1,3-Dichloropropene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Trichloroethene	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Trichloroflouromethane	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	
Vinyl Chloride	ND	mg/kg	0.02135	11/14/2010	WOZ	EPA 8260B	

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number	101105046-006	**Sampling Date**	11/2/2010	**Date/Time Received**	11/5/2010 3:50 PM
Client Sample ID	MW-10 @ 13.5	**Sampling Time**	11:20 AM	**Extraction Date**	
Matrix	Soil	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier

Surrogate Data

Sample Number 101105046-006

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260B	103.6	70-130
4-Bromofluorobenzene	EPA 8260B	99.2	70-130
Toluene-d8	EPA 8260B	100.4	70-130

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number 101105046-010 | **Sampling Date** 11/2/2010 | **Date/Time Received** 11/5/2010 3:50 PM
Client Sample ID MW-11 @ 18.5 | **Sampling Time** 3:10 PM | **Extraction Date**
Matrix Soil | **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,1,1-Trichloroethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,1,2-Trichloroethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,1-Dichloroethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,1-Dichloroethene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,1-dichloropropene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,2,3-Trichlorobenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,2,3-Trichloropropane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,2,4-Trichlorobenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,2,4-Trimethylbenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,2-Dibromo-3-chloropropane(DBCP)	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,2-Dibromoethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,2-Dichlorobenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,2-Dichloroethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,2-Dichloropropane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,3,5-Trimethylbenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,3-Dichlorobenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,3-Dichloropropane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
1,4-Dichlorobenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
2,2-Dichloropropane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
2-Chlorotoluene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
2-hexanone	ND	mg/kg	0.1085	11/14/2010	WOZ	EPA 8260B	
4-Chlorotoluene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Acetone	ND	mg/kg	0.1085	11/14/2010	WOZ	EPA 8260B	
Acrylonitrile	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Benzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Bromobenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Bromochloromethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Bromodichloromethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Bromoform	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Bromomethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Carbon disulfide	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Carbon Tetrachloride	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Chlorobenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number 101105046-010 **Sampling Date** 11/2/2010 **Date/Time Received** 11/5/2010 3:50 PM
Client Sample ID MW-11 @ 18.5 **Sampling Time** 3:10 PM **Extraction Date**
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Chloroethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Chloroform	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Chloromethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
cis-1,2-dichloroethene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
cis-1,3-Dichloropropene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Dibromochloromethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Dibromomethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Dichlorodifluoromethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Ethylbenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Hexachlorobutadiene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Isopropylbenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
m+p-Xylene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Methyl ethyl ketone (MEK)	ND	mg/kg	0.1085	11/14/2010	WOZ	EPA 8260B	
Methyl isobutyl ketone (MIBK)	ND	mg/kg	0.1085	11/14/2010	WOZ	EPA 8260B	
Methylene chloride	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
methyl-t-butyl ether (MTBE)	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Naphthalene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
n-Butylbenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
n-Propylbenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
o-Xylene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
p-isopropyltoluene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
sec-Butylbenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Styrene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
tert-Butylbenzene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Tetrachloroethene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Toluene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
trans-1,2-Dichloroethene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
trans-1,3-Dichloropropene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Trichloroethene	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Trichloroflouromethane	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	
Vinyl Chloride	ND	mg/kg	0.0217	11/14/2010	WOZ	EPA 8260B	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C585; MT:Cert0095

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number	101105046-010	**Sampling Date**	11/2/2010	**Date/Time Received**	11/5/2010 3:50 PM
Client Sample ID	MW-11 @ 18.5	**Sampling Time**	3:10 PM	**Extraction Date**	
Matrix	Soil	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier

Surrogate Data

Sample Number 101105046-010

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260B	101.6	70-130
4-Bromofluorobenzene	EPA 8260B	99.6	70-130
Toluene-d8	EPA 8260B	102.4	70-130

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number 101105046-015 **Sampling Date** 11/3/2010 **Date/Time Received** 11/5/2010 3:50 PM
Client Sample ID MW-12 @ 33.5 **Sampling Time** 9:43 AM **Extraction Date**
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,1,1-Trichloroethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,1,2-Trichloroethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,1-Dichloroethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,1-Dichloroethene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,1-dichloropropene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,2,3-Trichlorobenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,2,3-Trichloropropane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,2,4-Trichlorobenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,2,4-Trimethylbenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,2-Dibromo-3-chloropropane(DBCP)	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,2-Dibromoethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,2-Dichlorobenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,2-Dichloroethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,2-Dichloropropane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,3,5-Trimethylbenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,3-Dichlorobenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,3-Dichloropropane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
1,4-Dichlorobenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
2,2-Dichloropropane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
2-Chlorotoluene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
2-hexanone	ND	mg/kg	0.11475	11/14/2010	WOZ	EPA 8260B	
4-Chlorotoluene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Acetone	ND	mg/kg	0.11475	11/14/2010	WOZ	EPA 8260B	
Acrylonitrile	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Benzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Bromobenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Bromochloromethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Bromodichloromethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Bromoform	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Bromomethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Carbon disulfide	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Carbon Tetrachloride	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Chlorobenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number	101105046-015	**Sampling Date**	11/3/2010	**Date/Time Received**	11/5/2010 3:50 PM
Client Sample ID	MW-12 @ 33.5	**Sampling Time**	9:43 AM	**Extraction Date**	
Matrix	Soil	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Chloroethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Chloroform	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Chloromethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
cis-1,2-dichloroethene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
cis-1,3-Dichloropropene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Dibromochloromethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Dibromomethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Dichlorodifluoromethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Ethylbenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Hexachlorobutadiene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Isopropylbenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
m+p-Xylene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Methyl ethyl ketone (MEK)	ND	mg/kg	0.11475	11/14/2010	WOZ	EPA 8260B	
Methyl isobutyl ketone (MIBK)	ND	mg/kg	0.11475	11/14/2010	WOZ	EPA 8260B	
Methylene chloride	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
methyl-t-butyl ether (MTBE)	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Naphthalene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
n-Butylbenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
n-Propylbenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
o-Xylene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
p-isopropyltoluene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
sec-Butylbenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Styrene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
tert-Butylbenzene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Tetrachloroethene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Toluene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
trans-1,2-Dichloroethene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
trans-1,3-Dichloropropene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Trichloroethene	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Trichloroflouromethane	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	
Vinyl Chloride	ND	mg/kg	0.02295	11/14/2010	WOZ	EPA 8260B	

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number	101105046-015	**Sampling Date**	11/3/2010	**Date/Time Received**	11/5/2010 3:50 PM
Client Sample ID	MW-12 @ 33.5	**Sampling Time**	9:43 AM	**Extraction Date**	
Matrix	Soil	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier

Surrogate Data

Sample Number 101105046-015

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260B	102.0	70-130
4-Bromofluorobenzene	EPA 8260B	102.0	70-130
Toluene-d8	EPA 8260B	104.0	70-130

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number 101105046-020 **Sampling Date** 11/3/2010 **Date/Time Received** 11/5/2010 3:50 PM
Client Sample ID B-5 @ 33.5 **Sampling Time** 1:50 PM **Extraction Date**
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,1,1-Trichloroethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,1,2-Trichloroethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,1-Dichloroethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,1-Dichloroethene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,1-dichloropropene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,2,3-Trichlorobenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,2,3-Trichloropropane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,2,4-Trichlorobenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,2,4-Trimethylbenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,2-Dibromo-3-chloropropane(DBCP)	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,2-Dibromoethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,2-Dichlorobenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,2-Dichloroethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,2-Dichloropropane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,3,5-Trimethylbenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,3-Dichlorobenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,3-Dichloropropane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
1,4-Dichlorobenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
2,2-Dichloropropane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
2-Chlorotoluene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
2-hexanone	ND	mg/kg	0.11725	11/14/2010	WOZ	EPA 8260B	
4-Chlorotoluene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Acetone	ND	mg/kg	0.11725	11/14/2010	WOZ	EPA 8260B	
Acrylonitrile	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Benzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Bromobenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Bromochloromethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Bromodichloromethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Bromoform	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Bromomethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Carbon disulfide	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Carbon Tetrachloride	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Chlorobenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number	101105046-020	**Sampling Date**	11/3/2010	**Date/Time Received**	11/5/2010 3:50 PM
Client Sample ID	B-5 @ 33.5	**Sampling Time**	1:50 PM	**Extraction Date**	
Matrix	Soil	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Chloroethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Chloroform	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Chloromethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
cis-1,2-dichloroethene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
cis-1,3-Dichloropropene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Dibromochloromethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Dibromomethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Dichlorodifluoromethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Ethylbenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Hexachlorobutadiene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Isopropylbenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
m+p-Xylene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Methyl ethyl ketone (MEK)	ND	mg/kg	0.11725	11/14/2010	WOZ	EPA 8260B	
Methyl isobutyl ketone (MIBK)	ND	mg/kg	0.11725	11/14/2010	WOZ	EPA 8260B	
Methylene chloride	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
methyl-t-butyl ether (MTBE)	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Naphthalene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
n-Butylbenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
n-Propylbenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
o-Xylene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
p-isopropyltoluene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
sec-Butylbenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Styrene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
tert-Butylbenzene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Tetrachloroethene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Toluene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
trans-1,2-Dichloroethene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
trans-1,3-Dichloropropene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Trichloroethene	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Trichloroflouromethane	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	
Vinyl Chloride	ND	mg/kg	0.02345	11/14/2010	WOZ	EPA 8260B	

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number	101105046-020	**Sampling Date**	11/3/2010	**Date/Time Received**	11/5/2010 3:50 PM
Client Sample ID	B-5 @ 33.5	**Sampling Time**	1:50 PM	**Extraction Date**	
Matrix	Soil	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier

Surrogate Data

Sample Number 101105046-020

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260B	102.4	70-130
4-Bromofluorobenzene	EPA 8260B	104.4	70-130
Toluene-d8	EPA 8260B	105.2	70-130

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number 101105046-022 | **Sampling Date** 11/3/2010 | **Date/Time Received** 11/5/2010 4:16 PM
Client Sample ID TRIP BLANK | **Sampling Time** | **Extraction Date**
Matrix Liquid | **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,1,1-Trichloroethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,1,2-Trichloroethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,1-Dichloroethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,1-Dichloroethene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,1-dichloropropene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,2,3-Trichlorobenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,2,3-Trichloropropane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,2,4-Trichlorobenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,2,4-Trimethylbenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,2-Dibromo-3-chloropropane(DBCP)	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,2-Dibromoethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,2-Dichlorobenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,2-Dichloroethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,2-Dichloropropane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,3,5-Trimethylbenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,3-Dichlorobenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,3-Dichloropropane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
1,4-Dichlorobenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
2,2-Dichloropropane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
2-Chlorotoluene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
2-hexanone	ND	mg/kg	0.1	11/14/2010	WOZ	EPA 8260B	
4-Chlorotoluene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Acetone	ND	mg/kg	0.1	11/14/2010	WOZ	EPA 8260B	
Acrylonitrile	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Benzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Bromobenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Bromochloromethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Bromodichloromethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Bromoform	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Bromomethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Carbon disulfide	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Carbon Tetrachloride	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Chlorobenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C585; MT:Cert0095

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Client: GEO ENGINEERS
Address: 523 E 2ND
SPOKANE, WA 99202
Attn: DAVE LAUDER

Batch #: 101105046
Project Name: IONE, WA 0504-058-00

Analytical Results Report

Sample Number 101105046-022
Client Sample ID TRIP BLANK
Matrix Liquid
Comments

Sampling Date 11/3/2010
Sampling Time
Sample Location

Date/Time Received 11/5/2010 4:16 PM
Extraction Date

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Chloroethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Chloroform	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Chloromethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
cis-1,2-dichloroethene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
cis-1,3-Dichloropropene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Dibromochloromethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Dibromomethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Dichlorodifluoromethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Ethylbenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Hexachlorobutadiene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Isopropylbenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
m+p-Xylene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Methyl ethyl ketone (MEK)	ND	mg/kg	0.1	11/14/2010	WOZ	EPA 8260B	
Methyl isobutyl ketone (MIBK)	ND	mg/kg	0.1	11/14/2010	WOZ	EPA 8260B	
Methylene chloride	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
methyl-t-butyl ether (MTBE)	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Naphthalene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
n-Butylbenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
n-Propylbenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
o-Xylene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
p-isopropyltoluene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
sec-Butylbenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Styrene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
tert-Butylbenzene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Tetrachloroethene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Toluene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
trans-1,2-Dichloroethene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
trans-1,3-Dichloropropene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Trichloroethene	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Trichloroflouromethane	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	
Vinyl Chloride	ND	mg/kg	0.02	11/14/2010	WOZ	EPA 8260B	

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Client:	GEO ENGINEERS	**Batch #:**	101105046
Address:	523 E 2ND SPOKANE, WA 99202	**Project Name:**	IONE, WA 0504-058-00
Attn:	DAVE LAUDER		

Analytical Results Report

Sample Number	101105046-022	**Sampling Date**	11/3/2010	**Date/Time Received**	11/5/2010 4:16 PM
Client Sample ID	TRIP BLANK	**Sampling Time**		**Extraction Date**	
Matrix	Liquid	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier

Surrogate Data

Sample Number 101105046-022

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260B	99.2	70-130
4-Bromofluorobenzene	EPA 8260B	102.8	70-130
Toluene-d8	EPA 8260B	104.8	70-130

Authorized Signature

Kathleen A. Sattler

Kathy Sattler, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

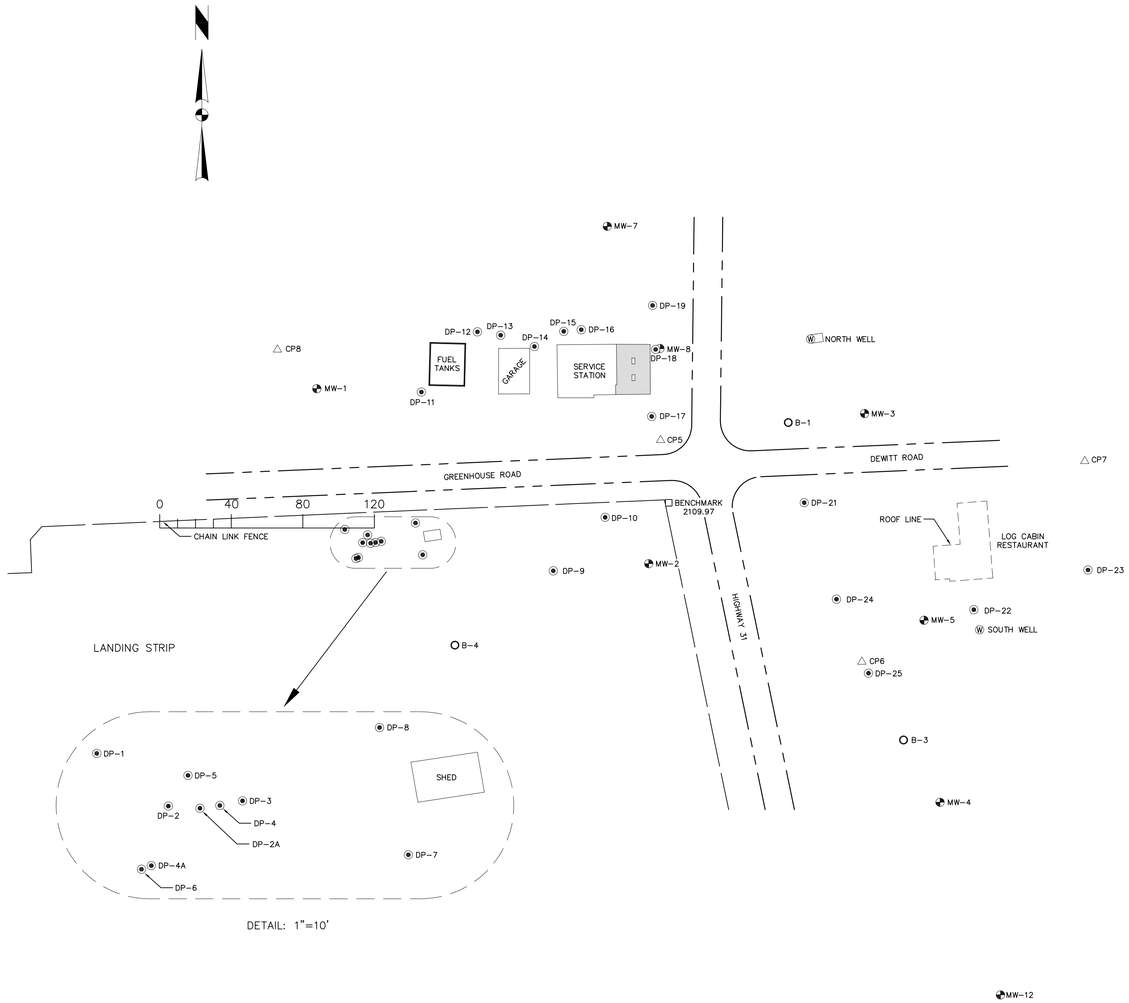
Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C585; MT:Cert0095

APPENDIX D
Survey Data

MONITORING WELLS/SITE FEATURES

GEO ENGINEERS PROJECT NO. 0504-058-00

LOCATED IN SECTION 7 AND SECTION 18,
TOWNSHIP 37 NORTH, RANGE 43 EAST, WILLAMETTE MERIDIAN,
PEND OREILLE COUNTY, IONE, WASHINGTON



DETAIL: 1"=10'

COORDINATE TABLE

STATION	NORTHING	EASTING	RIM/GROUND ELEVATION	TOP OF PVC ELEVATION
MW-1	643763.814	2465789.627	2106.68	2106.45
MW-2	643617.071	2466067.935	2109.62	2109.36
MW-3	643743.030	2466248.966	2110.44	2110.17
MW-4	643416.970	2466312.181	2109.49	2109.31
MW-5	643569.617	2466298.778	2109.59	2109.28
MW-6	643438.242	2466586.057	2110.55	2110.34
MW-7	643899.995	2466033.222	2109.60	2109.31
MW-8	643797.534	2466077.366	2110.03	2109.72
MW-9	643752.492	2466611.702	2109.65	2109.43
MW-10	643155.547	2467276.698	2085.90	2085.56
MW-11	643377.431	2467079.611	2093.65	2093.44
MW-12	643255.389	2466362.883	2109.27	2108.87
DP-1	643645.789	2465813.077	2108.32	–
DP-2	643634.738	2465828.080	2109.24	–
DP-2A	643634.283	2465834.712	2109.20	–
DP-3	643635.834	2465843.632	2109.27	–
DP-4	643634.865	2465838.879	2109.15	–
DP-4A	643622.255	2465824.515	2109.62	–
DP-5	643641.176	2465832.194	2109.12	–
DP-6	643621.497	2465822.450	2109.61	–
DP-7	643624.531	2465878.404	2109.00	–
DP-8	643651.204	2465872.358	2108.82	–
DP-9	643611.094	2465987.897	2108.67	–
DP-10	643655.967	2466031.413	2109.41	–
DP-11	643761.042	2465877.317	2106.00	–
DP-12	643811.517	2465924.299	2107.29	–
DP-13	643808.701	2465943.793	2107.19	–
DP-14	643799.221	2465972.104	2108.14	–
DP-15	643811.912	2465996.671	2109.02	–
DP-16	643813.292	2466011.367	2108.96	–
DP-17	643740.556	2466070.422	2110.09	–
DP-18	643796.785	2466073.730	2109.85	–
DP-19	643833.661	2466071.168	2109.92	–
DP-21	643668.236	2466198.336	2109.41	–
DP-22	643578.490	2466340.561	2111.77	–
DP-23	643611.802	2466436.278	2110.93	–
DP-24	643587.298	2466225.375	2109.72	–
DP-25	643525.249	2466252.211	2109.29	–
B-1	643735.470	2466184.960	2109.77	–
B-3	643469.210	2466281.611	2109.26	–
B-4	643548.756	2465905.410	2108.71	–
B-5	643264.847	2466829.296	2108.52	–
NORTH WELL	643805.469	2466203.638	2111.66	–
SOUTH WELL	643561.645	2466345.391	2111.46	–
TDH CP5	643720.647	2466077.813	2111.08	–
TDH CP6	643534.781	2466246.685	2109.69	–
TDH CP7	643703.032	2466433.567	2111.39	–
TDH CP8	643796.544	2465756.630	2106.68	–
TDH CP10	643710.315	2466770.412	2102.71	–

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

LEGEND

- MONITORING WELL
- DP
- BOREHOLE
- EXISTING WATER WELL
- WSDOT BENCHMARK
- TD&H SURVEY CONTROL POINT

NOTES

1. VERTICAL DATUM FOR THIS SURVEY IS NAVD 88 AT WSDOT MONUMENT DESIGNATION "LANDING STRIP", WSDOT ID NO. 7397 (NATIONAL GEODETIC SURVEY PID DL2781). ELEVATION=2109.97.
2. HORIZONTAL DATUM FOR THIS SURVEY IS NAD 83, WASHINGTON STATE PLANE, NORTH ZONE, GROUND COORDINATES.
2. MONITORING WELL ELEVATIONS WERE TAKEN AT GROUND/RIM LEVEL AND AT THE TOP OF PVC PIPE AT THE NORTHERLY EDGE.
3. TD&H SURVEY CONTROL POINTS ARE RANDOMLY LOCATED 60d SPIKES.

REVISIONS
BY MPR DATE 9/15/10 DESCR REVERSE DP 7 & 8
BY MPR DATE 11/24/10 DESCR ADDITIONAL WELLS, ETC
BY DATE DESCR

THOMAS, DEAN & HOSKINS, INC.
ENGINEERING CONSULTANTS
GREAT FALLS–BOZEMAN–KALISPELL
SPOKANE
LEWISTON
MONTANA
WASHINGTON
IDAHO

TD&H

DRAWN BY:	MPR
DESIGNED BY:	
QUALITY CHECK:	MPR
DATE:	11/24/10
JOB NO.	S10-048
FIELDBOOK	TDS

GEO ENGINEERS PROJECT NO. 0504-058-00
IONE, WASHINGTON

SITE FEATURES BASE MAP

CAD NO. S10-048BM.DWG

SHEET 1 OF 1

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APPENDIX E
Report Limitations and Guidelines for Use

APPENDIX E
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

Environmental Services Are Performed for Specific Purposes, Persons and Projects

GeoEngineers has performed this Supplemental Site Characterization of the Ione Petroleum Contamination site located in Ione, Washington in general accordance with the Work Plan, dated April 9, 2010. This report has been prepared for the exclusive use of Science Applications International Corporation, Washington Department of Ecology, their authorized agents and regulatory agencies. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an ESA study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and property. No one except Science Applications International Corporation, Washington State Department of Ecology should rely on this environmental report without first conferring with GeoEngineers. Use of this report is not recommended for any purpose or project except the one originally contemplated.

This Environmental Report is Based on a Unique Set of Project-Specific Factors

This report has been prepared for the Ione Petroleum Contamination site located in Ione, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made to the project or property after the date of this report, we recommend that GeoEngineers be given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

1 Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

Reliance Conditions for Third Parties

Our report was prepared for the exclusive use of our Client. No other party may rely on the product of our services unless we agree to such reliance in advance and in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted environmental practices in this area at the time this report was prepared.

Environmental Regulations Are Always Evolving

Some substances may be present in the vicinity of the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substances, change or if more stringent environmental standards are developed in the future.

Uncertainty May Remain Even After This Phase II ESA is Completed

Performance of a Phase II ESA is intended to reduce uncertainty regarding the potential for contamination in connection with a property, but no ESA can wholly eliminate that uncertainty. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

Subsurface Conditions Can Change

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the subject property, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Please contact GeoEngineers before applying this report for its intended purpose so that GeoEngineers may evaluate whether changed conditions affect the continued applicability of the report.

Soil and Groundwater End Use

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other properties or for other on-site uses of the affected soil and/or groundwater. Note that hazardous substances may be present in some of the on-site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject property or reuse of the affected soil or groundwater on-site to evaluate the potential for associated environmental liabilities. We are unable to assume responsibility for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject property to another location or its reuse on-site in instances that we did not know or could not control.

Most Environmental Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the subject property. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an informed opinion about subsurface conditions throughout the property. Actual subsurface conditions may differ, sometimes significantly, from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Do Not Redraw the Exploration Logs

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproduction is acceptable, but separating logs from the report can create a risk of misinterpretation.

Read These Provisions Closely

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are less exact than other engineering and natural science disciplines. Without this understanding, there may be expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you need to know more about how these "Report Limitations and Guidelines for Use" apply to your project or property.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.

Have we delivered World Class Client Service?
Please let us know by visiting **www. geoengineers.com/feedback**.

GeoEngineers