100210 /

Release # 532064
Provisioners Express
Auburn

DATA SUMMARY REPORT 101210 / 532064

DEPARTMENT OF ECOLOGY
NWRO/TCP TANKS UNIT
INTERIM CLEANUP REPORT ☐
SITE CHARACTERIZATON ☐
FINAL CLEANUP REPORT ☐
OTHER ☐
AFFECTED MEDIA: SOIL ☐
OTHER GW ☐
INSPECTOR (INIT.) DATE

DEPARTMENT OF ECOLOGY
NWRO/TCP TANKS UNIT
SITE ASSESSMENT REPORT
ADEQUATE ☐ NOT ADEQUATE ☐
DEFICIENCIES/ACTION TAKEN:
INSPECTOR (INIT.) DATE

Provisioners Express, Inc.
Provisioners Express, Inc. Auburn Facility
2102 West Valley Highway
Auburn, Washington

Project Number: 3613

RECEIVED
FEB 19 1999
DEPT OF ECOLOGY

February 11, 1999

RECEIVED
FEB 16 1999
ECOLOGY

EMR
INCORPORATED
ENVIRONMENTAL MANAGEMENT RESOURCES

Lawrence, KS ▼ Redmond, WA ▼ Duluth, MN ▼ Lincoln, NE ▼ Ft. Worth, TX ▼ Denver, CO

Attorney Work Product *(DRAFT)* *Privileged and Confidential*

DATA SUMMARY REPORT

for the:

Provisioners Express Auburn Facility
2102 West Valley Highway
Auburn, Washington

to:

Montgomery, Purdue, Blankinship & Austin, PLLC
701 5th Avenue, Suite 5800
Seattle, WA 98104

by:

Environmental Management Resources, Inc.
2509 152nd Avenue NE, Suite B
Redmond, Washington 98052-5551

Project Number: 3613

January 14, 1999

Attorney Work Product *(DRAFT)* *Privileged and Confidential*

DATA SUMMARY REPORT

Provisioners Express, Inc.
Provisioners Express, Inc. Auburn Facility
2102 West Valley Highway
Auburn, Washington

Project Number: 3613

Prepared for:

Montgomery, Purdue, Blankinship & Austin, PLLC
701 5th Avenue, Suite 5800
Seattle, WA 98104

Prepared by:

Environmental Management Resources, Inc.
2509 152nd Avenue NE, Suite B
Redmond, Washington 98052-5551

January 14, 1999

David L. Welch
Project Manager

Don Clabaugh, CPG, PE
Senior Project Manager

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

This report is a Data Summary Report which summarizes all data and evaluations completed to date at the Provisioners Express, Inc. facility in Auburn, Washington. This report was prepared in response to the discovery of waste oil and mineral spirits contamination associated with a 550-gallon waste oil undergound storage tank (UST) and attached drain lines/floor sumps.

1.1 REPORT ORGANIZATION

➢ Section 1 presents site background information, and an overview of the Phase I Environmental Site Assessment conducted by Atlantic Geoscience, Inc. (AGI) on behalf of Watkins Freight Terminals, Inc.

➢ Section 2 summarizes the Remedial Investigation (RI) objectives, methods and findings. The investigative approach included:

- Review of geologic and hydrogeologic information for the site vicinity;
- Collection and analysis of post-excavation soil samples from UST closure assessment;
- Performance of tracer dye test on north sump drain;
- Collection and analysis of post-excavation soil samples from floor sumps/drain lines inside service bays;
- Collection and analysis of soil samples from sixteen Strataprobe™ soil borings; and
- Collection and analysis of groundwater samples from three groundwater monitoring wells.

1.2 SITE LOCATION AND FEATURES

The Provisioners Express Auburn facility is located at 2102 West Valley Highway in Auburn, Washington. Figure 1 presents a Site Location Map. The property is zoned M-1, light industrial. Properties surrounding the project site are light industrial, commercial business parks, and undeveloped parcels. The site is located on the 1983 U.S.G.S 7.5 by 15 minute Auburn quadrangle in the NW Corner of Section 12, Township 21 North, Range 5 East. (U.S.G.S., 1983) The site is located at 47° 19' 54" North Lattitude and 122°14'55" West Longitude.

The subject property is owned and operated by Provisioners Express, Inc. Mr. David Pollart, President of Provisioners Express, Inc. is the contact for the subject property. Mr. Pollart's mailing address is Provisioners Express, Inc., 2102 West Valley Highway, Auburn, WA.

Features of the property include a vacant 3-acre lot on the north end, an existing refridgerated terminal with offices on the south end, a two service bay maintenance building with associated 550 gallon waste oil UST, 12,000 gallon diesel UST, and oil/water separator on the east portion of the property, and a parking lot area. The developed portion of the property spans approximately 6 acres of land.

The portion of the property that the subject area consists of is a 6,090 square feet maintenance shop with two service bays, a 550 gallon waste oil UST off the northwest corner of the maintenance shop, a 12,000 gallon diesel UST and dispensor and an oil/water separator (Figure 2-Site Features Map).

Ground surface generally slopes gently to the west across the parking lot toward West Valley Highway on the western boundary of the site. Based on U.S.G.S. topographic map contours, the site is approximately 75 feet above mean sea level. Surface drainage flows toward a storm drain catch basin to the west of the maintenance shop.

1.3 SITE BACKGROUND

On September 14, 1998 Atlantic Geoscience, Inc. (AGI), an environmental consultant from Atlanta, Georgia, conducted a Phase I Environmental Site Assessment and Limited Subsurface Investigation on behalf of an interested potential buyer of the facility, Watkins Terminals, Inc. (AGI, 1998).

Based on AGI's investigation, the site was vacant land from prior to 1950 through at least 1987. The Provisioners Express terminal was constructed in 1987. In addition to the Phase I ESA, AGI advanced five (5) soil borings to assess whether there were any releases of petroleum hydrocarbons from the waste oil and diesel USTs. Three borings (B-1 through B-3) were advanced around the diesel UST and two borings (B-4 and B-5) were advanced around the waste oil UST. Soil and water samples were collected from all of the borings (except for boring B-4) and analyzed for oil-range, diesel-range and gasoline-range hydrocarbons by the qualitative hydrocarbon identification (HCID) method WTPH-HCID. During the drilling of boring B-4, located near the waste oil UST, free oil was encountered. No soil or water samples were subsequently collected from this boring (Table 1).

No hydrocarbons by HCID were evident in soil samples collected from all the other borings. However, all of the water samples collected from the borings contained oil, gasoline and diesel-range hydrocarbons above state action levels (Table 1).

EMR notes that the HCID method is subject to organic interferences as it uses no silica gel cleanup in it's method. It is important to note that there is a 6-inch thick layer of peat that corresponds roughly to groundwater depth at approximately 7 to 8 feet below ground surface. According to Mr. Pollart of Provisioners Express, the diesel UST has always passed routine tank tightness testing. Based on this information and the nature of the HCID method, the AGI groundwater data is questionable regarding reliability.

2.0 REMEDIAL INVESTIGATION

2.1 INVESTIGATIVE OBJECTIVE

The objective of the RI was to obtain sufficient investigative data to characterize the distribution of hydrocarbon contamination from the waste oil UST and associated piping and evaluate the potential threat to human health and the environment.

The RI field work focused on evaluation of waste oil and diesel range hydrocarbons in the subsurface and mineral spirits-range hydrocarbons, toluene, ethylbenzene and xylenes. Specific objectives of the focused RI included:

- Adequately characterize the nature and extent of soil exposure to oil and diesel hydrocarbons, mineral spirits-range hydrocarbons and toluene, ethylbenzene and xylenes by obtaining data regarding the lateral and vertical distribution of listed contaminant concentrations in the subsurface.

- Obtain reasonably available information regarding local geologic and hydrogeologic conditions.

- Obtain information on potential impacts to the groundwater in the uppermost aquifer beneath the site.

2.2 INVESTIGATIVE METHODS

The following methods were used to acquire information and data during the RI:

- Review of geologic and hydrogeologic information including environmental site assessment reports, available from public sources;

- Collection and analysis of post-excavation soil samples from waste oil UST closure;

- Completion of a tracer dye test to determine the integrity of waste oil drain lines;

- Collection and analysis of post-excavation soil samples from the waste oil drain line trench;

- Collection and analysis of soil samples from a Strataprobe™ investigation; and

- Collection and analysis of groundwater samples from three groundwater monitoring wells screened in the shallow aquifer.

Methods and results are discussed in the following subsections.

2.2.1 UST Closure and Sampling

EMR conducted UST closure assessment activities in October 1998 for the removal of one 550-gallon fiberglass UST containing waste oil. Upon EMR's initial observations on October 8, 1998, it was evident that an unknown volume of free oil had drained into the soils and backfill surrounding the tank. West Pac Environmental was the UST removal contractor. The source of the free oil was a 4-inch ABS plastic drain line, which had sheared off approximately 2 to 3 feet from the drain hole into the tank. Following removal of the UST, it was observed to be in good condition with no observed holes or cracks. This 4-inch drain line was connected in series to two (2) concrete floor drains/sumps in the two north service bays of the maintenance shop. Approximately 350 cubic yards of contaminated soil containing elevated concentrations of oil and diesel range hydrocarbons were removed and disposed.

Five post-excavation soil samples (PX-1 through PX-5) were collected from the waste oil UST excavation following removal of impacted soils. All samples were tested for diesel and oil range hydrocarbons using the NWTPH-Dx Ecology Method. Sample locations are shown on Figure 3. Analtyical results are presented in Table 2.

2.2.2 Tracer Dye Test

At the time of excavation of contaminated soils around the UST, a tracer dye test, using a non-hazardous red dye, was performed in the north sump/floor drain. A 4-inch diameter expansion plug was placed on the outflow portion of the drainline at the south excavation limits. Approximately 50 gallons of water were poured into the north drain until the water level was approximately 3 to 4 inches below concrete floor level. An appropriate volume of dye proportionate to the amount of water was then placed in the drain with the water. Approximately 1 hour after initiating the test, the red dye was observed to percolate through standing water accumulated in the UST excavation. Based on this test, the ABS plastic drain line and/or concrete drain/sump was determined to have leaked.

2.2.3 Waste Oil Drain Trench Sampling

Following the tracer dye test, a 4.5-feet wide by 23-feet long trench was cut in the 6-inch thick concrete slab on November 3, 1998. The trench included both concrete drain sumps, connecting ABS plastic drain line and the section of drain line between the north sump drain and the north wall of the building. Based on visual observation by West Pac Environmental during removal, the two oil floor drains were of two-piece concrete construction (Figure 4). Localized oil seeps were observed at approximately 3 to 4 feet below grade on both sides of the trench walls.

An additional eleven (11) post-excavation soil samples (TR-1 and TR-2 and PX-6 through PX-14), were collected from the waste oil drain line and sump trench excavation. All eleven soil samples were collected from the sidewalls and bottom of the completed excavation. All samples were tested for diesel and oil range hydrocarbons using the NWTPH-Dx Ecology Method. Sample locations are shown in Figure 3. Analtyical results are presented in Table 2.

2.2.4 Strataprobe™ Sampling and Analysis

During the last week of November 1998, a Strataprobe™ soil boring investigation was completed to delineate the extent of the oil seeps observed during trench excavation. Sixteen (16) Strataprobe™ soil borings were advanced by TEG, Inc. using Strataprobe™ direct push technology. Fourteen (14) of the sixteen soil borings were initially cored through a 6-inch thick concrete slab on the inside of the maintenance shop and on the west side of the maintenance shop roll-up doors. The purpose of the Strataprobe™ investigation was to delineate the horizontal extent of oil seeps that were visible on the sidewalls of the trench excavation. Visual observation of oil seeps in split spoon samples, measured photoionization detector (PID) readings in collected samples, odor, and discoloration were used as field screening techniques to evaluate oil seeps.

Ten (10) Strataprobe™ subsurface soil samples (ST-1A, ST-4A, ST-5A, ST-6A, ST-7A, ST-8A, ST-9A, ST-9B, ST-15A, ST-16A) were tested for oil and diesel range TPH by the NWTPH-Dx method.

Based on field screening, light-end hydrocarbons with a mineral spirits-like odor were prevalent on the east side of the oil drain trench. Sample (ST-9B), collected from a depth of 6.5 feet below ground surface, displayed the highest PID readings, and was further tested for specific halogenated hydrocabons (benzene, toluene, ethylbenzene and xylenes) and NWTPH-Gx.

2.2.5 Groundwater Monitoring Well Installation

In December 1998, three (3) groundwater monitoring wells MW-1 through MW-3 were drilled and completed. Cascade Drilling, Inc. completed the work. The purpose of the wells was to:

- Determine if a release of oil and diesel range hydrocarbons had impacted groundwater.
- Determine groundwater flow direction and gradient.
- Determine if additional groundwater wells were necessary based on groundwater flow direction and gradient.

A truck-mounted drill rig equipped with 8-inch hollow-stem augers was used to drill three soil borings that were completed as monitoring wells MW-1 through MW-3. EMR logged the borings for soil types, conducted field screening with a PID and logged the construction of the wells. All wells were completed to a depth of 15 feet bgs with a 5-foot section of 2-inch PVC flush threaded to a 10-foot section of 2-inch PVC well screen with 0.01-inch slots flush threaded to a bottom plug. Appropriate-sized sand pack was placed in the annular space between the well and boring to a depth of 3 feet below ground surface followed by a 2 foot thick bentonite seal and completed with cement grout at the surface. A locking expansion well cap and lock and steel well housing with bolt down lid installed flush to grade completed the installation (Appendix C, Well Logs).

All three wells were developed by Cascade Drilling using a surge block and bailer. Approximately 5 well volumes were purged prior to collecting groundwater samples.

Following installation of the wells, Entranco Surveyors surveyed north side top of casing elevations for all three monitoring wells to an arbitrary datum of 100 feet above sea level (Appendix D).

EMR measured groundwater from top of casing on all three monitoring wells prior to collecting samples. Depth to groundwater was subtracted from surveyed top of casing (TOC) elevation to obtain groundwater elevation and construct a groundwater gradient map. Table 5 presents groundwater fluid level measurements for December 23, 1998 and January 5, 1999. Figure 5 presents a groundwater gradient map for the January 5, 1999 groundwater monitoring event.

2.2.6 Groundwater Sampling

Following installation, development and surveying, groundwater samples were collected from the three monitoring wells and tested for oil and diesel range hydrocarbons by NWTPH-Dx method.

2.3 INVESTIGATIVE FINDINGS

2.3.1 Soil Conditions

Logs of the three (3) monitoring wells advanced during this investigation are presented in Appendix C. Based on observation of soils during excavations, Strataprobe™ sampling and drilling of monitoring wells, the study area is underlain by brown to gray silty fine to coarse gravel with sand to a depth of approximately 7 to 8 feet. At 7 to 8 feet is a 6-inch thick peat layer, the base of which roughly corresponds to groundwater elevation. Below the peat layer is a layer of dark gray, fine grained sand to a depth of approximately 17 to 18 feet. At 17 to 18 feet depth is a layer of coarse gravel and cobbles.

These soils are listed as Quaternary alluvium (Qaw) in the Auburn Geologic Quadrangle Map #GC-406, King and Pierce Counties (Mullineaux, 1965). The Qaw soils are listed as follows:

> **Qaw**, mostly gravel and sand deposited by the White River. Bouldery cobble and pebble-cobble gravel and sand in White River Valley. Pebble-cobble gravel overlain by thin sand in Duwamish Valley at mouth of White River valle, grades outward to thick coarse and medium sand overlain by thin silt, clay and peat. Forms distinct fan in Duwamish Valley at mouth of White River valley. Pattern indicates recent, unmodified channel deposits at surface. Maximum thickness in Duwamish Valley more than 100 feet. Contains glassy volcanic material possibly reactive in some concrete.

These soils, were deposited during the Vashon Stade of the Frazier Glaciation during the Pleistocene epoch and reworked during changes in river course of the Green River.

2.3.2 Hydrogeology

The project site is situated on the west edge of the Green River Valley below a prominent north-south trending ridge to the west.

Groundwater elevation below the site in September 1998 was approximately 9 feet below ground surface (bgs) based on AGI's Phase I Environmental Assessment soil borings. Static groundwater elevations in three groundwater monitoring wells installed in December 1998 stabilized in early January 1999 at approximately 5 feet bgs.

Based on measured depth to groundwater from surveyed top of well casing elevations and constructing contours of equal elevation, the inferred groundwater flow direction is to the southeast under a hydraulic gradient of 0.002. Table 5 summarizes surveyed top of casing elevation data, measured depth to groundwater, and corresponding groundwater elevation. Figure 6 presents a Groundwater Gradient Map for data collected on January 5, 1999. Appendix D presents raw survey data collected by Entranco Surveyors.

2.3.3 Analytical Results

2.3.3.1 Waste Oil UST Closure Soil Sample Analyical Results

Table 2 and Figure 3 present the results of NWTPH-Dx analyses on post-excavation soil samples PX-1 through PX-5. The table summarizes sample I.D., location, depth and concentration of oil and diesel range total petroleum hydrocarbons (TPH). A total of five samples were collected, consisting of four sidewall samples and one bottom sample. Of these, sample PX-1, collected from the the south sidewall of the UST excavation at a depth of approximately 7 feet bgs, contained a concentration of TPH above applicable cleanup levels. Sample PX-1 contained 660 milligrams/kilogram (mg/kg) or equivalent parts per million (ppm) heavy oil range TPH and 2,200 ppm diesel range TPH. Additional removal of contaminated soils from the south excavation wall was not possible due to the north structural wall of the maintenance shop. The bottom and remaining sidewall samples contained no detectable concentrations of oil or diesel range TPH. Figure 3 shows the locations of post-excavation soil samples in relation to excavation limits and site features.

In addition to NWTPH-Dx analysis, sample PX-2, collected from the bottom of the excavation below the UST location, was analyzed for the RCRA 8 metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver. RCRA 8 metals were not detected except for 36 ppm barium and 13 ppm chromium. These concentrations are below applicable cleanup levels.

Analytical results indicate that except for the south wall, where further excavation was not possible because of a load-bearing wall, the excavation was closed clean.

2.3.3.2 Oil Drain Trench Soil Sample Analytical Results

Table 2 and Figure 3 present the results of NWTPH-DX analyses on post excavation soil samples PX-6 through PX-14 and TR-1 and TR-2. A total of eleven (11) trench soil samples were collected consisting of four (4) bottom samples and seven (7) sidewall samples. All sidewall samples and one bottom sample contained concentrations of oil and diesel range TPH above applicable cleanup levels. Sample TR-1 and TR-2 were collected from an initial trench that included two 3-foot by 3-foot concrete oil drain sumps and connecting 4-inch diameter ABS plastic drain line. Samples TR-1 and TR-2, collected from below the north and south oil drains at depths of 9 and 6 feet, respectively, contained no detectable concentrations of oil or diesel range TPH. These initial samples were collected in moist but not wet soils. Bottom sample PX-10, collected from a depth of 9 feet was collected in wet soil. Figure 3 shows the locations of post-excavation soil samples in relation to excavation limits and site features.

Though hydrocarbons were generally not observed to migrate below a depth of 8 to 9 feet, numerous hot spots of visible oil seeps were observed along the east and west sidewalls. The excavation was expanded to the west and east to remove oil seeps observed during the Strataprobe™ Investigation (Sections 2.2.4 and 2.3.3.4).

Oil range TPH ranged from non-detectable to 8600 ppm. Diesel range TPH ranged from non-detectable to 5000 ppm. Based on the analtyical results of trench sampling, this excavation is not clean closed.

Based on the impediments of a 6-inch concrete slab, excavating an approximate volume of 100 cubic yards of soil, and reaching the western and northern edge of the maintenance shop structure, excavation activities were terminated.

2.3.3.3 Soil Diposal Criteria Sample Analytical Results

Table 3 presents the results of sample SP-01, analyzed for oil and diesel range TPH by method NWTPH-Dx, and TLCP Metals. This sample was collected and analyzed for the purpose of profiling the soil for direct disposal at the time of excavation and removal of contaminated soils. The sample contained 12,000 ppm diesel TPH and 26,000 oil TPH however contained no detectable TCLP metals.

2.3.3.4 Strataprobe™ Soil Sample Analytical Results

Table 4 and Figure 5 presents the results of Strataprobe™investigation soil samples analyzed for NWTPH-Dx. Sixteen soil borings were advanced and a total of 15 soil samples were sent for laboratory analyses, of which 10 were analyzed. Of the 10 soil samples analyzed, two (2) samples ST-5B and ST-9B contained concentrations of oil and diesel range TPH above applicable cleanup levels. Sample ST-5B contained 1,200 ppm oil TPH and 390 diesel TPH while sample ST-9B contained 290 ppm oil TPH and 550 ppm diesel TPH. Four (4) samples contained concentrations of diesel range TPH below applicable cleanup levels but above detection limits. Two (2) samples contained concentrations of oil range TPH below applicable cleanup levels but above detection limits.

Four (4) samples contained no detectable concentrations of oil or diesel range TPH.

Sample ST-9B collected from Strataprobe™boring ST-9, near the northeast corner of the trench excavation at a depth of 6.5 feet bgs, was further tested for specific halogenated hydrocarbons by EPA 8021b (including benzene, toluene, ethylbenzene and total xylenes {BTEX}) and TPH in the mineral spirits/stoddard solvent range by method NWTPH-Gx. Sample ST-9B contained no detectable benzene, 0.29 ppm toluene, 7.3 ppm ethylbenzene, 30 ppm xylenes, and 14,000 ppm TPH in the mineral spirits/stoddard solvent range. Of these results, the xylenes concentration was above the current MTCA Method A Cleanup level of 20 ppm. The concentration of TPH as mineral spirits/stoddard solvent exceeded the proposed MTCA Method A Industrial Cleanup level of 4000 ppm.

2.3.3.5 Groundwater Sample Analytical Results

Table 6 and Figure 6 present the results of groundwater sampling. Three groundwater samples were collected, one from each of the wells MW-1 , MW-2 and MW-3. Water collected from well MW-1 and MW-3 contained no detectable concentations of oil or diesel range TPH by method NWTPH-Dx. Water collected from well MW-2 contained 250 micrograms/liter (ug/L) or equivalent parts per billion (ppb). None of the samples contained concentrations above applicable state cleanup levels.

2.3.4 Estimate of Remaining Soils containing Oil and Diesel Range Hydrocarbons

Based on review of Strataprobe investigation soil sampling and post-excavation soil sampling from the waste oil drain trench, it is estimated that 140 cubic yards of contaminated soil containing oil and diesel range TPH above applicable cleanup levels remain.

2.3.5 Estimate of Remaining Groundwater Containing Hydrocarbons

A downgradient well has not been installed at the site. The cross-gradient well MW-2 contains 0.25 mg/L (ppm) TPH. This concentration suggests that the cleanup level (1 mg/L) could be exceeded in the downgradient direction.

3.0 REFERENCES

Atlantic Geosciences, Inc. (AGI), Phase I Environmental Assessment, Provisioners Terminal, Auburn, Washington, Prepared for Watkins Terminals, Inc., September 14, 1998.

United States Geological Survey (U.S.G.S) Auburn, Washington, 1:25,000-scale metric topographic map, 7.5 x 15 minute Quadrangle, 1983.

United States Geological Survey (U.S.G.S) Poverty Bay, Washington, 1:24,000-scale topographic map, 7.5 minute series, x 15 minute Quadrangle, 1961, rev. 1994.

United States Geological Survey (U.S.G.S) Geologic Map of the Auburn Quadrangle, King and Pierce Counties, Washington, D.R. Mullineaux, 1965.

Table 1: Summary of Analytical Results-AGI Phase I Investigation, September 1998
Provisioners Express Facility, Auburn, WA
EMR Project No. 3613

					NWTPH-HCID (mg/kg)			
Soil Boring I.D.	Soil Boring Depth (feet bgs)	Soil Boring Location	Sample I.D.	Sample Depth	Diesel	Oil	Gasoline	Comments
B-1	12.5	Diesel UST	1 SOIL	8	<64	<130	<26	Concentration of Analytes below State Levels
B-2	12.5	Diesel UST	2 SOIL	8	<62	<120	<25	Concentration of Analytes below State Levels
B-3	12.5	Diesel UST & Oil/Water Separator	3 SOIL	8	<57	<110	<23	Concentration of Analytes below State Levels
B-4	8.5	Waste Oil UST	N/A	NA	N/A	N/A	N/A	Encountered Free Oil at 6 feet bgs, no samples collected.
B-5	12.5	Waste Oil UST	5 SOIL	8	<76	<150	<31	Concentration of Analytes below State Levels

					NWTPH-HCID (mg/L)			
Soil Boring I.D.	Soil Boring Depth (feet bgs)	Soil Boring Location	Sample I.D.	Sample Depth	Diesel	Oil	Gasoline	Comments
B-1	12.5	Diesel UST	1 WATER	9	>0.26	>0.53	>0.11	Water Sample subject to organic interference
B-2	12.5	Diesel UST	2 WATER	9	>0.27	<0.54	>0.11	Water Sample subject to organic interference
B-3	12.5	Diesel UST & Oil/Water Separator	3 WATER	9	>0.26	<0.53	>0.11	Water Sample subject to organic interference
B-4	8.5	Waste Oil UST	N/A	NA	N/A	N/A	N/A	Encountered Free Oil at 6 feet bgs, no samples collected.
B-5	12.5	Waste Oil UST	5 WATER	9	>0.26	>0.53	>0.11	Water Sample subject to organic interference

N/A = not analyzed, encountered free oil
bgs = below ground surface

Table 2: Summary of Analytical Results - Post-Excavation Samples, UST & Oil Drains
October through December, 1998
Provisioners Express Facility, Auburn, WA
EMR Project No. 3613

			WTPH-Dx Results (ppm)	
Sample I.D.	Sample Location/ Type	Depth Sample (feet bgs)	Oil	Diesel
PX - 1	South Sidewall-UST	7	660	2200
PX - 2	Bottom of UST Excavation	13	ND	ND
PX - 3	East Sidewall-UST	7	ND	ND
PX - 4	West Sidewall-UST	7	ND	ND
PX - 5	North Sidewall-UST	7	ND	ND
PX - 6	East Sidewall-Trench	4	260	1300
PX - 7	East Sidewall-Trench	4	630	2500
PX - 8	South Sidewall-Trench	4	3800	1500
PX - 9	Trench Bottom	9	ND	ND
PX - 10	Trench Bottom	9	120	250
PX -11	South Sidewall-Trench	4	5400	1400
PX- 12	West Sidewall-Trench	4	8600	5000
PX -13	West Sidewall-Trench	5	5500	2400
PX - 14	West Sidewall-Trench	4	160	45
TR - 1	Trench Bottom	9	ND	ND
TR - 2	Trench Bottom	6	ND	ND
Practical Quantitation Level (PQL)			25	25
MTCA Method A Cleanup Level		6	200	200

Note: Sample PX-2 from bottom of UST excavation analyzed for RCRA 8 metals arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver. All metals ND except barium = 36 ppm and chromium = 13 ppm.

ND = Not Detected
na = not applicable or not analyzed
bgs = below ground surface

Table 3: Summary of Analytical Results-Soil Disposal Criteria
Provisioners Express Facility, Auburn, WA
EMR Project No. 3613

Sample I.D.	Concentrations in mg/kg (ppm)									
	NWTPH-Dx		TCLP Metals							
	Diesel	Oil	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
SP-01	12000	26000	ND	ND	ND	ND	ND	ND	ND	ND
Practical Quantitation Level (PQL)	270	220	0.4	3.0	0.02	0.02	0.2	0.01	0.4	0.02
WA Dangerous Waste Criteria	N/A	N/A	5	100	1.0	5.0	5.0	0.2	1.0	5.0

ND = Not Detected
N/A = Not Applicable

Table 4: Summary of Analytical Results-Strataprobe Investigation - November, 1998
Provisioners Express Facility, Auburn, WA
EMR Project No. 3613

Sample I.D.	Sample Location/ Type	Depth Sample (feet bgs)	All concentrations in mg/kg (ppm)						
			NWTPH-Dx			EPA Method 8021B			
			Diesel	Oil	Mineral Spirits	Benzene	Toluene	Ethyl-benzene	Xylenes
ST - 1A	Strataprobe	6.5'	58	75	na	na	na	na	na
ST - 3A	Strataprobe	5.5'	na	na	na	na	na	na	na
ST - 4A	Strataprobe	6.0'	ND	ND	na	na	na	na	na
ST - 5A	Strataprobe	6.0'	390	1200	1200	na	na	na	na
ST - 6A	Strataprobe	5.0'	ND	ND	ND	na	na	na	na
ST - 7A	Strataprobe	5.0'	ND	ND	ND	na	na	na	na
ST - 8A	Strataprobe	6.0'	58	86	86	na	na	na	na
ST - 9A	Strataprobe	4.0'	48	ND	ND	na	na	na	na
ST - 9B	Strataprobe	6.5'	550	290	14000	ND	0.29	7.3	30
ST - 10A	Strataprobe	6.5'	na	na	na	na	na	na	na
ST - 11A	Strataprobe	4.0'	na	na	na	na	na	na	na
ST - 12A	Strataprobe	6.5'	na	na	na	na	na	na	na
ST - 14A	Strataprobe	6.5'	na	na	na	na	na	na	na
ST - 15A	Strataprobe	5.0'	na	na	na	na	na	na	na
ST - 16A	Strataprobe	4.0'	53	ND	ND	na	na	na	na
ST - 16A (DUPL)	Strataprobe	4.0'	48	ND	ND	na	na	na	na
Reporting Limits			20	50	5.0	0.05	0.05	0.05	0.05
MTCA Method A Cleanup Levels			200	200	N/A	5.0	40	20	20

ND = Not Detected
na = not analyzed
bgs = below ground surface

Table 5: Summary of Groundwater Level Measurements
Provisioners Express Facility, Auburn, WA
EMR Project No. 3613

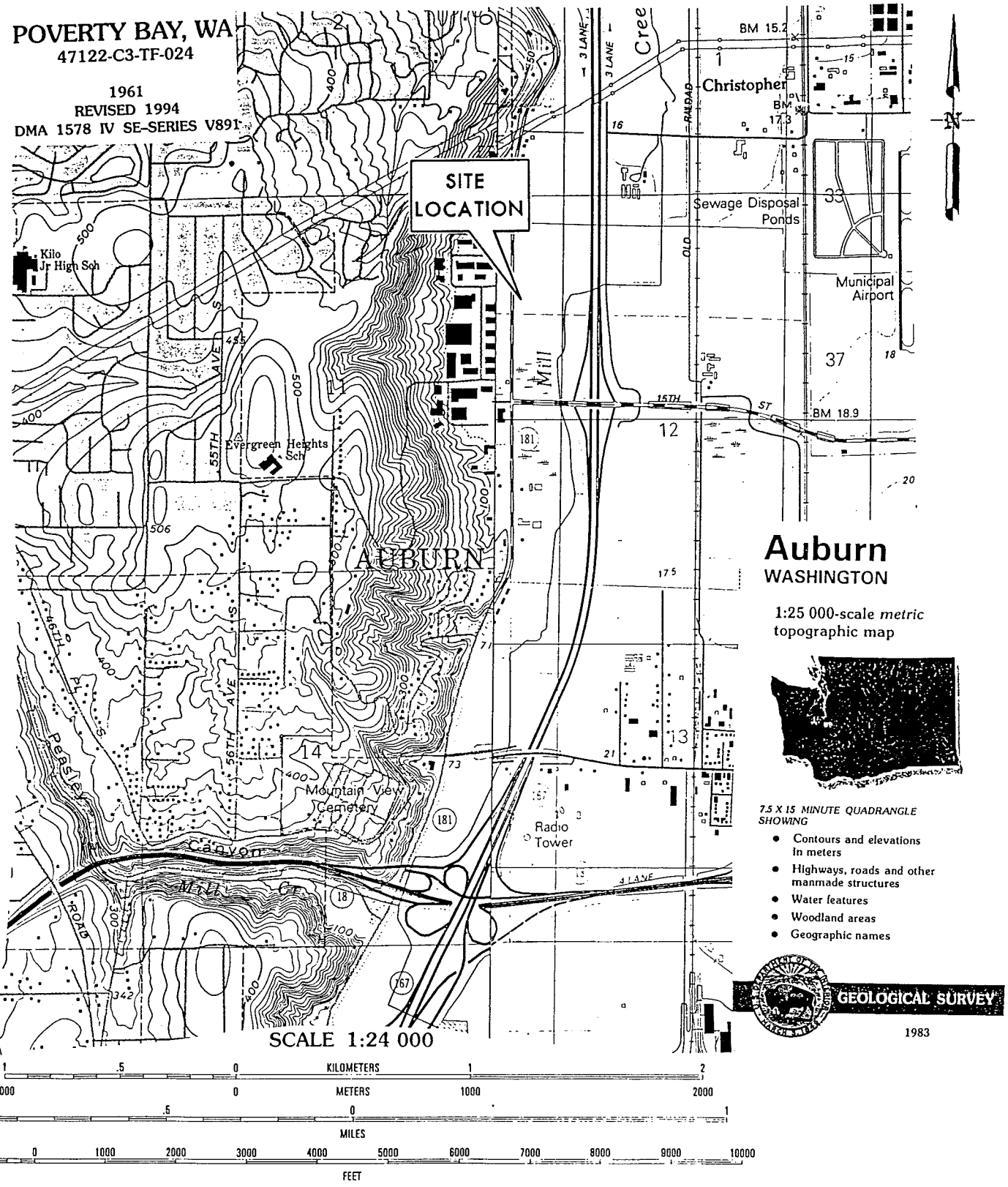
Well/Sample I.D.	Well Location	Well Depth (feet)	*TOC Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)
December 23, 1998 Event					
MW-1	NW Corner of Maintenance Shop	15	100.51	5.32	95.19
MW-2	North of Maintenance Shop	15	100.56	6.89	93.67
MW-3	East of Maintenance Shop	15	100.5	5.44	95.06
January 5, 1999 Event					
MW-1	NW Corner of Maintenance Shop	15	100.51	5.01	95.5
MW-2	North of Maintenance Shop	15	100.56	5.09	95.47
MW-3	East of Maintenance Shop	15	100.5	5.11	95.39

TOC = top of well casing
* = Top of Casing elevation measured from arbitrary datum of 100 feet above sea level

Table 6: Summary of Analytical Results-Groundwater Samples - December, 1998
Provisioners Express Facility, Auburn, WA
EMR Project No. 3613

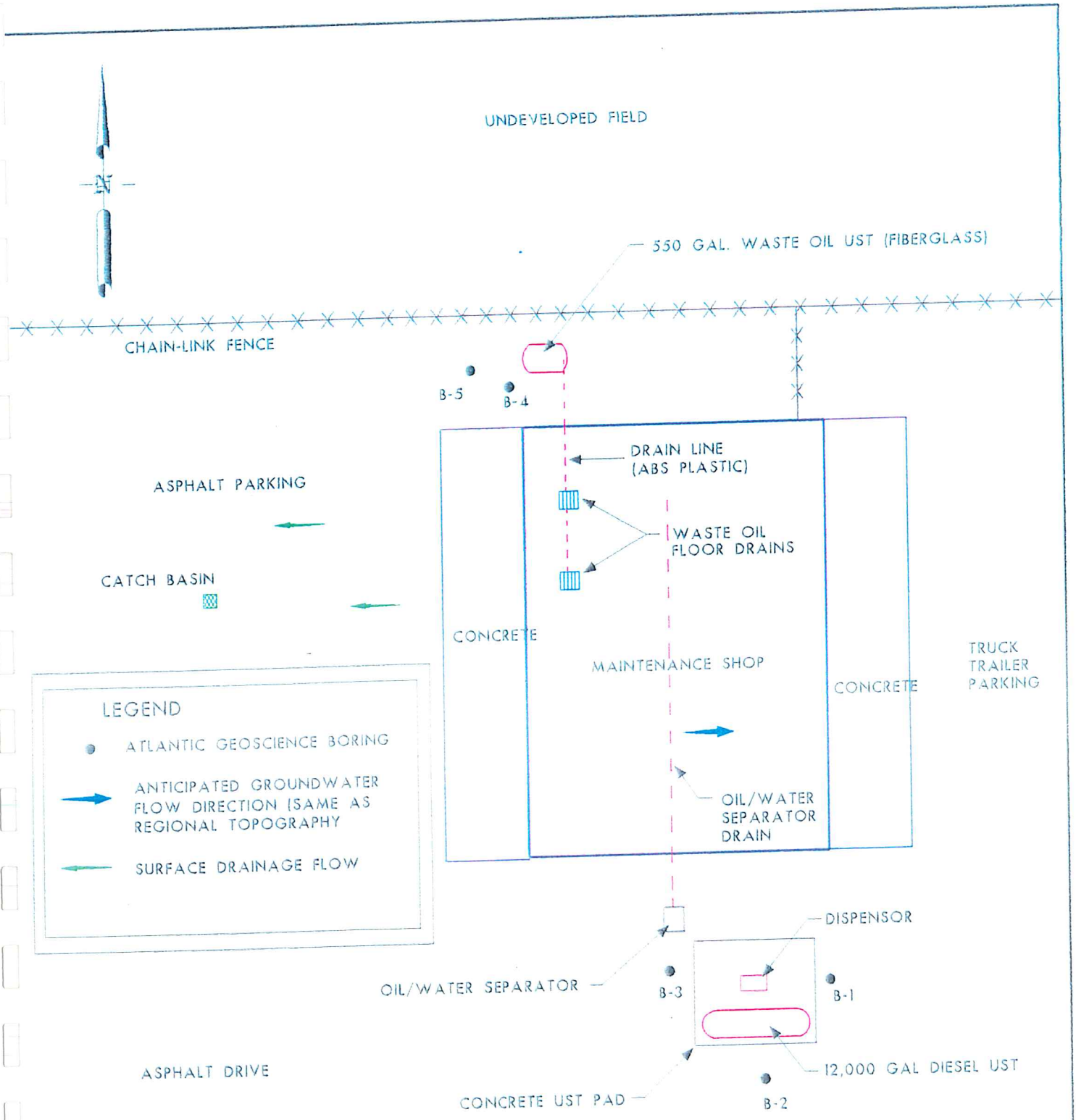
				WTPH-Dx Results (ppb)	
Sample I.D.	Well Location	Well Depth (feet)	TOC Elevation (feet)	Oil	Diesel
MW-1	NW Corner of Maintenance Shop	15	100.51	ND	ND
MW-2	North of Maintenance Shop	15	100.56	ND	250
MW-3	East of Maintenance Shop	15	100.5	ND	ND

ND = Not Detected



EMR INCORPORATED	Provisioners Express, Inc. Data Summary Report	Drawn By: DLW	Date: 1/7/99	FIGURE 1
	2102 West Valley Hwy Auburn, Washington Site Location Map	Checked By: DC	Scale: No Scale	
		Project #: 3613	File Name: 3613.gcd	

Attorney Work Product *(DRAFT)* *Privileged and Confidential*



EMR INCORPORATED

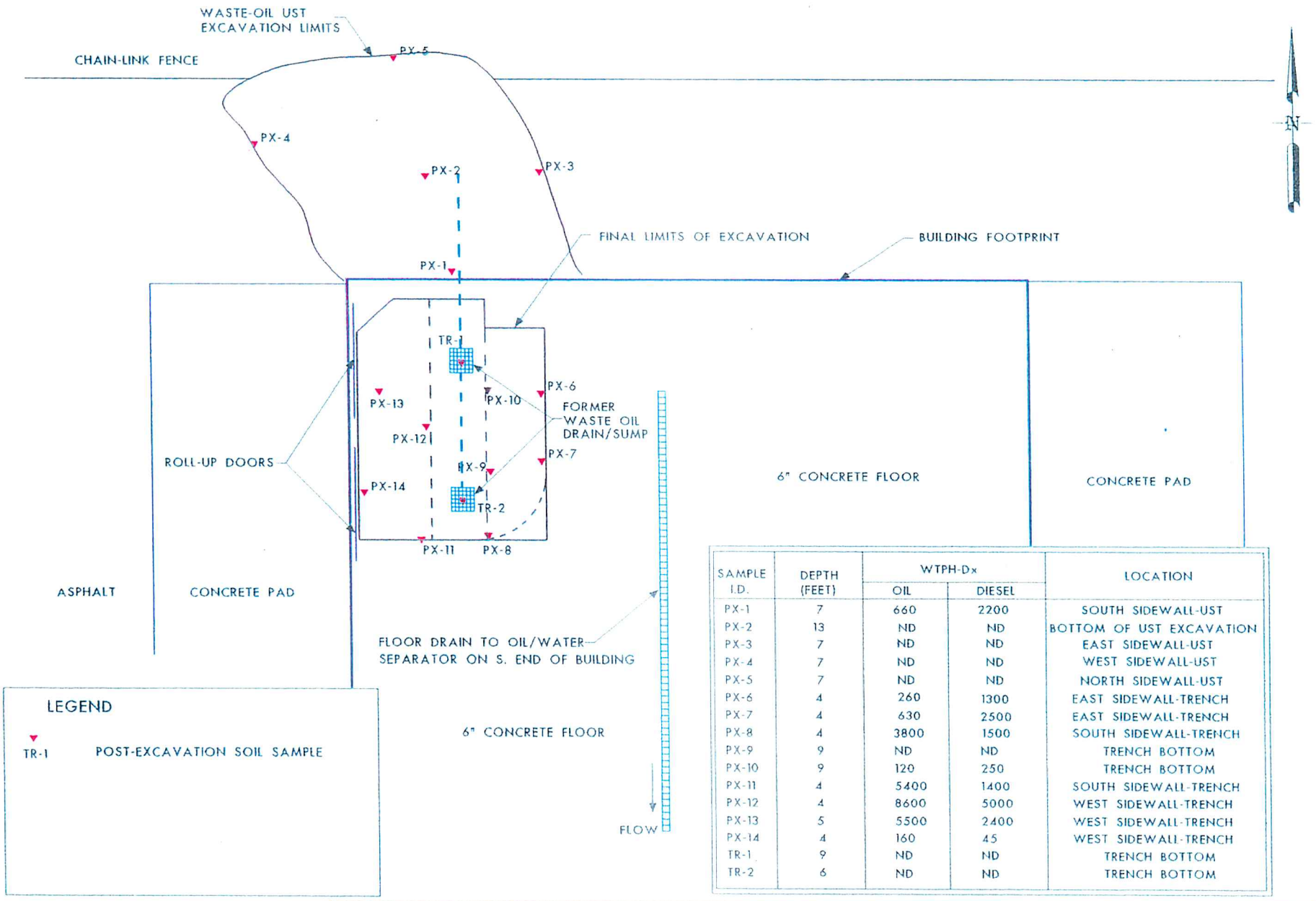
Provisioners Express, Inc.
Data Summary Report

2102 West Valley Hwy
Auburn, Washington
Site Features Map

Drawn By:	DLW	Date:	1/6/98
Checked By:	DC	Scale:	No Scale
Project #:	3613	File Name:	3613fig2.gcd

FIGURE 2

Attorney Work Product *(DRAFT)* *Privileged and Confidential*



SAMPLE I.D.	DEPTH (FEET)	WTPH-Dx		LOCATION
		OIL	DIESEL	
PX-1	7	660	2200	SOUTH SIDEWALL-UST
PX-2	13	ND	ND	BOTTOM OF UST EXCAVATION
PX-3	7	ND	ND	EAST SIDEWALL-UST
PX-4	7	ND	ND	WEST SIDEWALL-UST
PX-5	7	ND	ND	NORTH SIDEWALL-UST
PX-6	4	260	1300	EAST SIDEWALL-TRENCH
PX-7	4	630	2500	EAST SIDEWALL-TRENCH
PX-8	4	3800	1500	SOUTH SIDEWALL-TRENCH
PX-9	9	ND	ND	TRENCH BOTTOM
PX-10	9	120	250	TRENCH BOTTOM
PX-11	4	5400	1400	SOUTH SIDEWALL-TRENCH
PX-12	4	8600	5000	WEST SIDEWALL-TRENCH
PX-13	5	5500	2400	WEST SIDEWALL-TRENCH
PX-14	4	160	45	WEST SIDEWALL-TRENCH
TR-1	9	ND	ND	TRENCH BOTTOM
TR-2	6	ND	ND	TRENCH BOTTOM

EMR

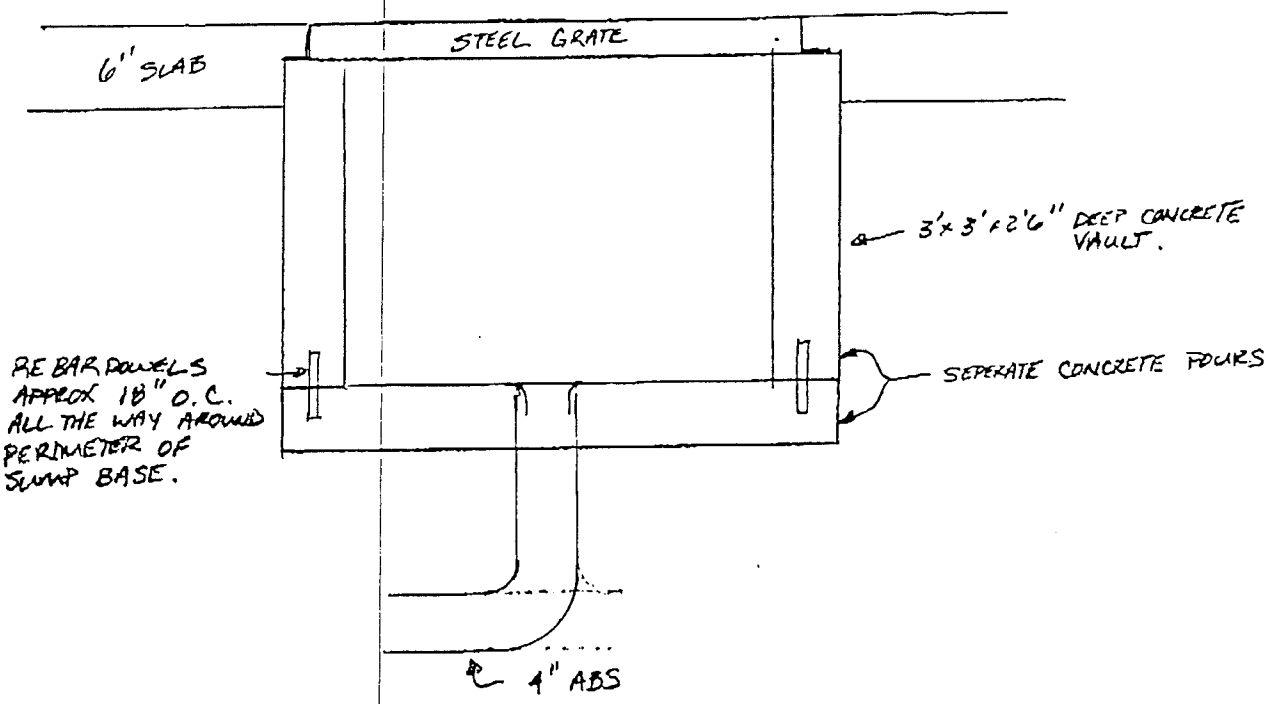
Provisioners Express, Inc.
Data Summary Report
2102 West Valley Hwy
Auburn, Washington

Drawn By:	DLW	Date:	1/7/99
Checked By:	DC	Scale:	As Shown
Project #:	2613	File Name:	3613.gcd

FIGURE 3

PROJECT: PROVISIONERS EXPRESS

WASTE OIL SUMPS



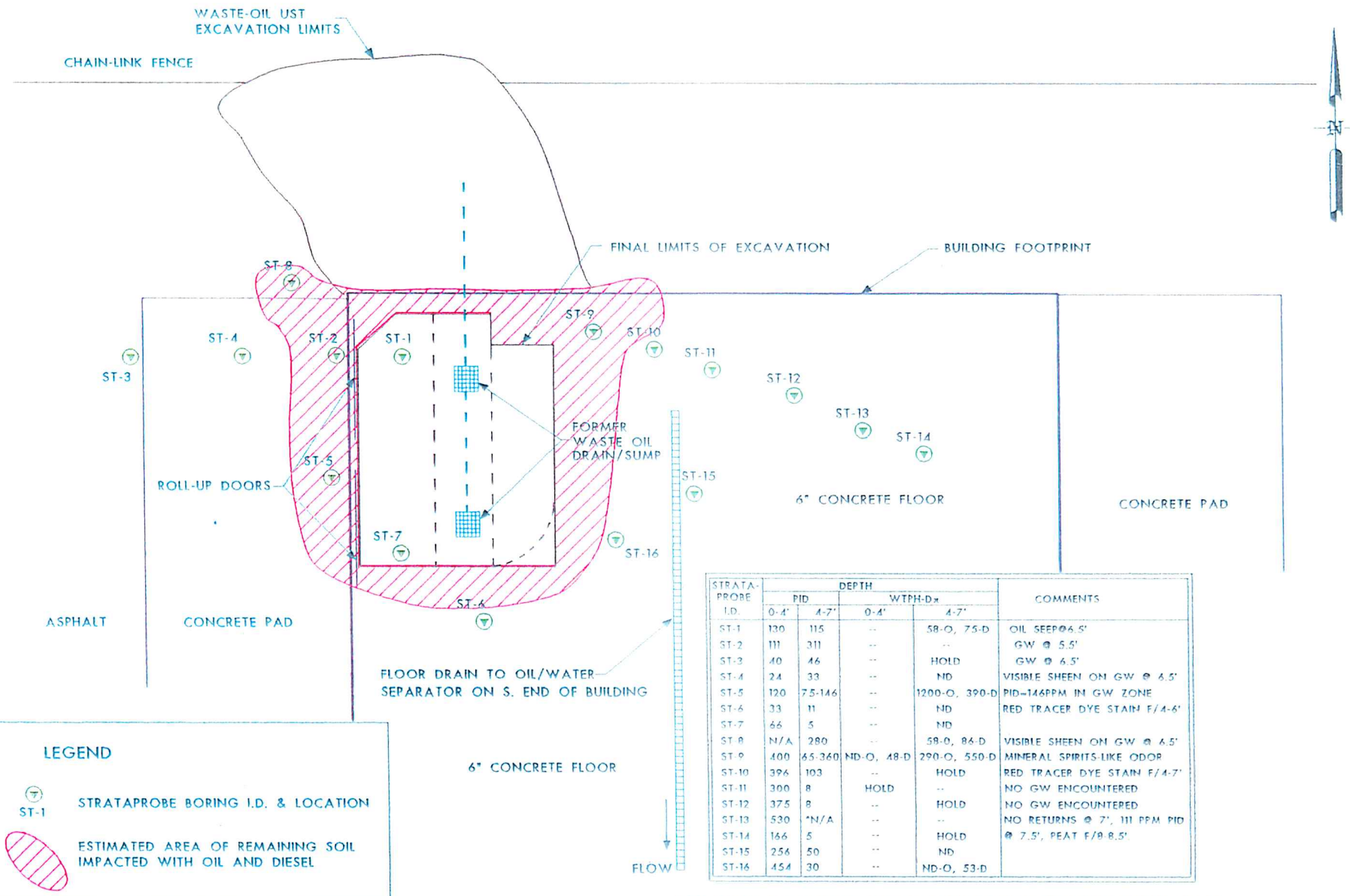
ELEVATION / SECTION

PREPARED BY: MARK M.
NOT TO SCALE.

54 South Dawson Street • Seattle, Washington 98134 • (206) 762-1190 • Fax (206) 762-9362

Recycled
Recyclable

EMR INCORPORATED	Provisioners Express, Inc. Data Summary Report	Drawn By: DLW	Date: 1/7/99	FIGURE 4
	2102 West Valley Hwy Auburn, Washington Waste Oil Drain Schematic	Checked By: DC	Scale: No Scale	
		Project #: 3613	File Name: 3613.gcd	



STRATA-PROBE I.D.	DEPTH PID 0-4'	DEPTH PID 4-7'	DEPTH WTPH-Dx 0-4'	DEPTH WTPH-Dx 4-7'	COMMENTS
ST-1	130	115	--	58-O, 75-D	OIL SEEP@6.5'
ST-2	111	311	--	--	GW @ 5.5'
ST-3	40	46	--	HOLD	GW @ 6.5'
ST-4	24	33	--	ND	VISIBLE SHEEN ON GW @ 6.5'
ST-5	120	75-146	--	1200-O, 390-D	PID=146PPM IN GW ZONE
ST-6	33	11	--	ND	RED TRACER DYE STAIN F/4-6'
ST-7	66	5	--	ND	
ST-8	N/A	280	--	58-O, 86-D	VISIBLE SHEEN ON GW @ 6.5'
ST-9	400	65-360	ND-O, 48-D	290-O, 550-D	MINERAL SPIRITS-LIKE ODOR
ST-10	396	103	--	HOLD	RED TRACER DYE STAIN F/4-7'
ST-11	300	8	HOLD	--	NO GW ENCOUNTERED
ST-12	375	8	--	HOLD	NO GW ENCOUNTERED
ST-13	530	*N/A	--	--	NO RETURNS @ 7', 111 PPM PID
ST-14	166	5	--	HOLD	@ 7.5', PEAT F/@ 8.5'
ST-15	256	50	--	ND	
ST-16	454	30	--	ND-O, 53-D	

NOTE: SAMPLE ST-9B COLLECTED FROM A DEPTH OF 7 FEET CONTAINED 14,000 PPM TPH AS MINERAL SPIRITS BY METHOD NWTPH-Gx, 0.29 PPM TOLUENE, 7.3 PPM ETHYLBENZENE, AND 30 PPM XYLENES BY EPA METHOD 8021B.

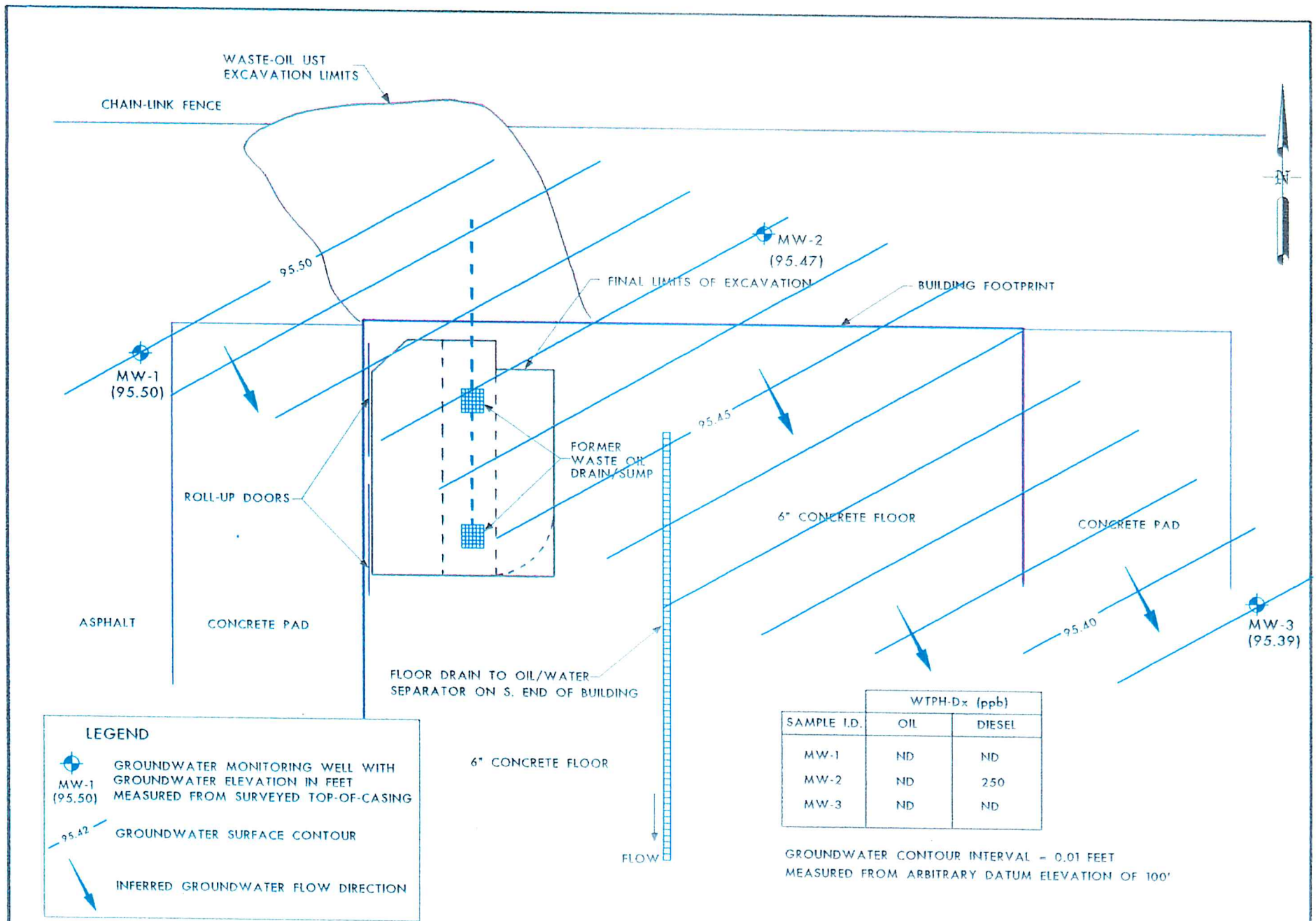
EMR INCORPORATED

Provisioners Express, Inc.
Data Summary Report
2102 West Valley Hwy
Auburn, Washington
Strataprobe Investigation

Drawn By:	DLW	Date:	1/7/99
Checked By:	DC	Scale:	As Shown
Project #:	2413	File Name:	2413.gcd

FIGURE 5

Attorney Work Product (DRAFT) Privileged and Confidential



SAMPLE I.D.	WTPH-Dx (ppb)	
	OIL	DIESEL
MW-1	ND	ND
MW-2	ND	250
MW-3	ND	ND

GROUNDWATER CONTOUR INTERVAL = 0.01 FEET
MEASURED FROM ARBITRARY DATUM ELEVATION OF 100'

EMR INCORPORATED

Provisioners Express, Inc.
Data Summary Report
2102 West Valley Hwy
Auburn, Washington
Groundwater Gradient May 5-9

Drawn By:	DLW	Date:	1/7/99
Checked By:	DC	Scale:	As Shown
Project #:	3413	File Name:	3413.gsd

FIGURE
6

Attorney Work Product (DRAFT) Privileged and Confidential

APPENDIX A - WDOE Site Check/Site Assessment Form

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY

UNDERGROUND STORAGE TANK
Site Check/Site Assessment Checklist

NW For Office Use Only LS
Owner # L 95-19
Site # 101210

INSTRUCTIONS:

When a release has **not** been confirmed and reported, this Site Check/Site Assessment Checklist must be completed and signed by a person registered with Ecology. **The results of the site check or site assessment must be included with this checklist.** This form must be submitted to Ecology at the address shown below within 30 days after completion of the site check/site assessment.

SITE INFORMATION: Include the Ecology site ID number if the tanks are registered with Ecology. This number may be found on the tank owner's invoice or tank permit.

TANK INFORMATION: Please list all tanks for which the site check or site assessment is being conducted. Use the owner's tank ID numbers if available, and indicate tank capacity and substance stored.

REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT: Please check the appropriate item.

CHECKLIST: Please initial each item in the appropriate box.

SITE ASSESSOR INFORMATION: This form must be signed by the registered site assessor who is responsible for conducting the site check/site assessment.

Underground Storage Tank Section
Department of Ecology
P. O. Box 47655
Olympia, WA 98504-7655

SITE INFORMATION

Site ID Number (on invoice or available from Ecology if the tanks are registered): 101210

Site/Business Name: PROVISIONERS EXPRESS, INC.

Site Address: 2102 W. VALLEY HWY (Street) Telephone: (253) 735-2500

AUBURN (City) WA (State) 98071-0989 (ZIP Code)

TANK INFORMATION

Tank ID No.	Tank Capacity	Substance Stored
~~UNK~~ #1 #2	550 GAL	WASTE OIL

REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- X Investigate suspected release due to on-site environmental contamination
- ___ Investigate suspected release due to off-site environmental contamination.
- ___ Extend temporary closure of UST system for more than 12 months.
- ___ UST system undergoing change-in-service.
- ___ UST system permanently closed-in-place.
- ___ UST system permanently closed with tank removed.
- ___ Abandoned tank containing product.
- ___ Required by Ecology or delegated agency for UST system closed before 12/22/88.
- ___ Other (describe):

CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

		YES	NO
1.	The location of the UST site is shown on a vicinity map.	X	
2.	A brief summary of information obtained during the site inspection is provided. (see Section 3.2 in site assessment guidance)	X	
3.	A summary of UST system data is provided. (see Section 3.1)	X	
4.	The soils characteristics at the UST site are described. (see Section 5.2)	X	
5.	Is there any apparent groundwater in the tank excavation?	X	
6.	A brief description of the surrounding land use is provided. (see Section 3.1)	X	
7.	Information has been provided indicating the number and types of samples collected, methods used to collect and analyze the samples, and the name and address of the laboratory used to perform the analyses.	X	
8.	A sketch or sketches showing the following items is provided:		
	- location and ID number for all field samples collected	X	
	- groundwater samples distinguished from soil samples (if applicable)	X	
	- samples collected from stockpiled excavated soil	X	
	- tank and piping locations and limits of excavation pit	X	
	- adjacent structures and streets	X	
	- approximate locations of any on-site and nearby utilities	X	
9.	If sampling procedures different from those specified in the guidance were used, has justification for using these alternative sampling procedures been provided? (see Section 3.4)	X	
10.	A table is provided showing laboratory results for each sample collected including; sample ID number, constituents analyzed for and corresponding concentration, analytical method and detection limit for that method.	X	
11.	Any factors that may have compromised the quality of the data or validity of the results are described.	X	
12.	The results of this site check/site assessment indicate that a confirmed release of a regulated substance has **not** occurred.		X

SITE ASSESSOR INFORMATION

David L. Wecch — Person registered with Ecology

EMR, Inc. — Firm Affiliated with

Business Address: 2509 152nd Ave NE, Suite B (Street) Telephone: (800) 275-3516

Redmond (City) WA (State) 98052 (ZIP+Code)

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

October 8, 1998 (Date) — Signature of Person Registered with Ecology

APPENDIX B - EMR Standard Operating Procedures

Appendix B

FIELD METHODOLOGY

This appendix describes field activities that will be implemented during the site investigation. Soil and ground water sampling, well construction techniques, and quality assurance and quality control (QA/QC) procedures that will be followed in the field are described below.

Soil Sampling Methodology

EMR will collect soil samples from soil borings using a truck-mounted drilling rig equipped with hollow-stem, continuous-flight augers. Soil sampling will be conducted at 5-foot intervals with a modified split-spoon soil sampler inside the hollow-stem augers. The use of hollow-stem augers provides sample integrity by preventing uphole soils caving in to the bottom of the boring during drilling. The soil sampler will be driven (pounded into the soil) ahead of the augers using a 140-pound hammer dropping 30-inches. The number of blows required to drive the sampler each 6-inch interval will be noted on the drilling logs. This sampling technique allows us to collect relatively undisturbed soil samples.

A geologist will visually examine soil recovered from the split-spoon at each sampling interval for soil classification and lithologic description, and classify it according to the Unified Soil Classification System. In addition, a drilling log will be maintained which records the vertical variations in lithology, water content, odor, color, texture, and organic vapor concentrations of the soils. These logs will be included as an appendix to the final report.

Soil samples recovered for possible laboratory analysis will be placed in laboratory-cleaned 8-oz glass jars with tight fitting plastic lids. Following labeling, sealed samples will be refrigerated at the site in a cooler containing pre-frozen Blue Ice packets. Soil sample tubes will be protected from potential exposure to the Blue Ice and each other by placing them in sealed Glad-Loc bags. EMR will complete chain-of-custody forms at the time of sampling, which will accompany the samples to the laboratory. In addition, these forms will be included as an appendix to the final report.

Field Screening (Headspace Tests)

EMR will screen recovered samples in the field (utilizing the headspace test method) with photoionization detector (PID) instrument to determine the concentration of organic vapors. Portions of the samples will be placed in a sealed resealable bag and placed in direct sunlight for approximately 15 minutes to encourage volatilization of chemical constituents. Following this equilibration period, EMR will measure the total organic vapor concentration in the sample headspace with the PID calibrated to benzene. This data will be recorded as a function of depth and instrument reading on the boring log.

Well Construction

EMR will construct monitoring wells using 2-inch-diameter schedule 40 PVC screen of 0.01-inch slot size threaded to a schedule 40 blank PVC casing above the water table. Screens will be installed over the proper depth interval to allow ground water sampling. Finally, the bottom of the screen will be sealed with a threaded PVC cap.

The total length of the screened interval will be 10 feet in each well. A graded filter pack consisting of 2/12 Silica Sand will be installed into the annular space between the screen and the inside of the borehole. The filter pack will extend from the bottom of the screen to a minimum of two feet above the top of the screen. The sand in the filter pack will then settle by using a surge block inside of the screen to ensure that "bridging" of the filter pack does not occur.

After the filter pack has been set into place and has adequately settled, a bentonite-chip seal will be added into the annular space of the well directly over the filter pack to a minimum thickness of two feet. The remaining interval of annular space will be grouted to within one foot of the surface with quick-mix concrete.. A plastic locking expansion cap will be installed at the top of the casing to protect the integrity of the well. Each well will then be equipped at the surface with a flush-mounted steel housing set in concrete. The housing will be fitted with a bolt-down, watertight lid. Specific measurements and information concerning final well construction parameters will be included as an appendix to the final report.

Well Development

Prior to sampling, EMR will develop each monitoring well using a PVC bailer. The purpose of well development is to purge the well of any foreign water that may be introduced during drilling or completion operations, and to enable the well to produce a ground water sample as representative of original, pre-drilling conditions as possible.

Before initiating well development, EMR will collect water level readings to determine the elevation of ground water in each well. A measuring point will be marked on the lip of the locking cap of each well. Next, EMR will measure the depth to ground water with a water level indicator (an electronic sounding device) accurate to 0.01 feet and calculate the volume of water in each well.

EMR will begin well development by removing well water using a 2-inch diameter PVC bailer. Development will be considered complete after either the water parameters of pH, temperature, and conductivity have stabilized or a total of ten casing volumes have been purged. This procedure normally results in the well water being relatively clear and free of suspended sediment. All water produced during well development will be contained in 55-gallon sealed drums and disposed of in accordance with proper procedures based on the results of ground water analyses. EMR will note data concerning the development of each well on a Well Development/Purge Form and include these forms as an appendix to the final report.

Groundwater Sampling Methodology

Immediately after well development, EMR will sample ground water from each well. Ground water samples will be obtained from just below the air-water interface with a disposable polyethylene bailer and a polypropylene rope dedicated to each well. The samples will be immediately transferred to one liter amber glass bottle preserved with HCL analyzed for oil and diesel range TPH by method NWTPH-Dx

A label will be affixed to each sample container to identify the job number, sampler, date and time of sample collection, analyses requested, and a sample number unique to that sample. EMR will record this information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel, and any other pertinent field observations in the field notebook. Following labeling of the sealed samples, the samples will be refrigerated at the site in a cooler with pre-frozen Blue Ice packets. Chain-of-custody forms will be completed at the time of sampling and accompany the samples to the laboratory.

FIELD QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

The QA/QC procedures described below provide a system of checks designed to minimize errors and ensure that all work is of reasonable quality. Although QA/QC is an important component of each aspect of a project, it is of fundamental importance in the collection and analysis of soil and ground water samples. The QA/QC procedures EMR will follow to ensure that samples obtained are precise and representative of actual conditions are described below.

Soil Sampling QA/QC

Field QA/QC procedures for soil sampling will include:

- Complete steam cleaning of drilling equipment prior to each drilling;
- Cleaning sampler and sample tubes with Alconox solution prior to soil sampling;
- Using disposable gloves during sampling procedures to reduce chances of cross contamination; and
- Preparing sample labels carefully and cross-comparing against chain-of-custody lists and field notes.

Ground Water Sampling QA/QC

Field QA/QC procedures for ground water sampling will include:

- Complete cleaning of all development equipment in an Alconox and water solution prior to the development of each well;
- Using disposable bailers and bottom-emptying devices with dedicated polypropylene ropes;
- Proceeding from 'least' to 'most' contaminated well (if known);
- Preparing all sample labels carefully and cross-comparing against chain-of-custody lists and field notes; and
- Analyzing duplicates and trip blank samples as appropriate.

APPENDIX C - Monitoring Well Logs

Well Log and Construction

Well No. *MW-1*

Date Drilled: *12/23/98* **County:** *King* **Use:** *MONITORING*

Location: *NW Corner of Maintenance Shop*

Owner *Provisioners Express, Inc.* **Address:** 2102 West Valley Hwy, Auburn, WA

Driller: *Cascade Drilling* **Geologist:** *David L. Welch*

Drilling Method: *Hollow Stem Auger* **Sampling Method:** *2-inch Split Spoon*

BORING: **Diameter:** *8-inch* **Total Depth:** *15 feet*

CASING: **Type:** *PVC* **Diameter:** *2-inch* **Length:** *5 feet*

SCREEN: **Type/Slot:** *PVC/0.01-inch* **Diameter:** *2-inch* **Length:** *10 feet*

Gravel Pack Size: *2/12 Sand* **Casing Seal:** *Bentonite Chips* **Static Water Level:** *5.32 FT*

DEPTH BELOW SURFACE	SAMPLE NUMBER	BLOWS PER 6" ON SAMPLER	WELL DESIGN	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
			cap, G, 1 ft, B, B, 3 ft, C		*4-inches of Asphalt at Surface*
				GM	*Gray to Brown, Silty, Sandy, Fine to Coarse GRAVEL Damp, Very Dense, Hydrocarbon-like odor, PID = 50 ppm (Photovac Microtip), Oil Seep at 4 feet*
		24			
5		50	5 ft		
			S, S, SC	SW	*Dark Gray Gravelly Fine SAND, Wet, Very Dense, No Hydrocarbon-like Odor, PID =40.1*
10					
		17			
		12		SP	*Dark Gray Fine SAND, Saturated, Medium Dense, No Hydrocarbon-like Odor*
		15			
15					
					Bottom of Boring at 15 feet, Install 2-inch Monitoring Well

WELL CONSTRUCTION SYMBOLS: SC = WELLSCREEN, S=SANDPACK, C=CASING, B=BENTONITE, G=GROUT, CAP=LOCKING CAP

Well Log and Construction

Well No. *MW-2*

Date Drilled: *12/23/98* **County:** *King* **Use:** *MONITORING*

Location: *North of Maintenance Shop*

Owner *Provisioners Express, Inc.* **Address:** *2102 West Valley Hwy, Auburn, WA*

Driller: *Cascade Drilling* **Geologist:** *David L. Welch*

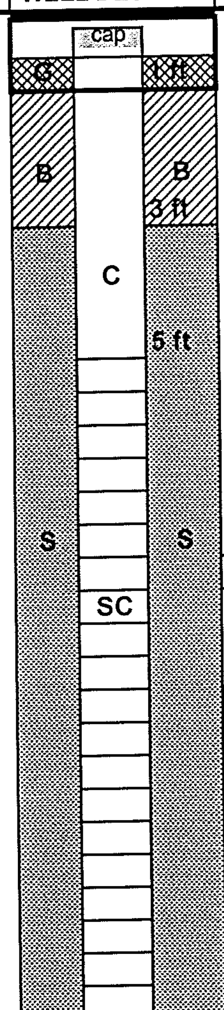
Drilling Method: *Hollow Stem Auger* **Sampling Method:** *2-inch Split Spoon*

BORING: Diameter: *8-inch* **Total Depth:** *15 feet*

CASING: Type: *PVC* **Diameter:** *2-inch* **Length:** *5 feet*

SCREEN: Type/Slot: *PVC/0.01-inch* **Diameter:** *2-inch* **Length:** *10 feet*

Gravel Pack Size: *2/12 Sand* **Casing Seal:** *Bentonite Chips* **Static Water Level:** *6.89 ft*

DEPTH BELOW SURFACE	SAMPLE NUMBER	BLOWS PER 6" ON SAMPLER	WELL DESIGN	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
					*4-inches of Asphalt at Surface*
		50/6"		GM	*Gray to Brown, Silty, Sandy, Fine to Coarse GRAVEL Damp, Very Dense, No Hydrocarbon-like odor, PID=0 (Photovac Microtip)*
5					
		5 9 16		Pt	*Dark Brown PEAT underlain by Dark Gray SAND, Wet, Medium Dense, No Hydrocarbon -like Odor, PID =1.8*
10					
		6 12 13		SP	*Dark Gray Fine SAND, Saturated, Medium Dense, No Hydrocarbon-like Odor, PID=0*
15					*Bottom of Boring at 15 feet, Install 2-inch Monitoring Well*

WELL CONSTRUCTION SYMBOLS: SC = WELLSCREEN, S=SANDPACK, C=CASING, B=BENTONITE, G=GROUT, CAP=LOCKING CAP

Well Log and Construction

Well No. MW-3

Date Drilled: 12/23/98 **County:** King **Use:** MONITORING

Location: East of Maintenance Shop

Owner: Provisioners Express, Inc. **Address:** 2102 West Valley Hwy, Auburn, WA

Driller: Cascade Drilling **Geologist:** David L. Welch

Drilling Method: Hollow Stem Auger **Sampling Method:** 2-inch Split Spoon

Total Depth: 15 feet

BORING: Diameter: 8-inch

CASING: Type: PVC Diameter: 2-inch Length: 5 feet

SCREEN: Type/Slot: PVC/0.01-inch Diameter: 2-inch Length: 10 feet

Gravel Pack Size: 2/12 Sand **Casing Seal:** Bentonite Chips **Static Water Level:** 5.44 ft

DEPTH BELOW SURFACE	SAMPLE NUMBER	BLOWS PER 6" ON SAMPLER	WELL DESIGN	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
			cap; G; 1 ft; B; B; 3 ft; C; 5 ft; S; S; SC		4-inches of Asphalt at Surface
				GM	Gray to Brown, Silty, Sandy, Fine to Coarse GRAVEL with trace cobbles, Very Dense, No Hydrocarbon-like odor, PID=0.0 (Photovac Microtip)
		17			
5		50			
				Pt	Dark Brown PEAT
				SP	Dark Gray Fine SAND, Saturated, Medium Dense, No Hydrocarbon-like Odor
10		12			
		17			
		18			
15					Bottom of Boring at 15 feet, Install 2-inch Monitoring Well

WELL CONSTRUCTION SYMBOLS: SC = WELLSCREEN, S=SANDPACK, C=CASING, B=BENTONITE, G=GROUT, CAP=LOCKING CAP

APPENDIX D - Entranco Survey Data

ENTRANCO
ENGINEERS • SCIENTISTS • PLANNERS • SURVEYORS

10900 NE 8th Street, Suite 300 (425) 454-5600
Bellevue, Washington 98004

Fax No: (425) 454-0220

FACSIMILE TRANSMITTAL

Date: 12/23/98

PLEASE DELIVER THE FOLLOWING PAGES IMMEDIATELY TO:

Name: Don Clabaugh

Firm/Agency: EMR

City: Redmond

Fax Number: (425) 869-7820

From: Eric SEBOLEN - FIELD SURVEYOR

Project/Promo Name/Number:

Remarks/Items Transmitted: I've sent you coords. of the monitor wells and a sketch of the area. More raw data will be provided by Jim Purkey next week (12-28-98).

Hard Copy ☐ Will ☒ Will Not Be Sent

No. of Pages (Including Transmittal Sheet): 4

If there are problems with transmission, call: (425) 454-5600

EMR

MONITORING WELLS MW-1

STA	+	HI	−	R+D	EL.
CP100					100.00
	6.03	(106.03)			
MW-1			5.52		100.51
	5.47	(105.98)			
CP100				5.97	100.01

MW-2

STA	+	HI	−	R+D	EL.
CP102					100.78
	5.49	(106.27)			
MW-2			5.71		100.56
	5.66	(106.22)			
CP102				5.43	100.79

12-23-98

7/2859

17

N. RIM OF PVC CASING

STA 100.00 0.01 +

N. RIM OF PVC CASING

STA 0.01 +

EMR Project No. 3613

Montgomery, Purdue, Blankinship & Austin, PLLC
Provisioners Express, Inc. Facility, Auburn, WA

18

EMR

MONITORING WELL -3

STA	+	HI	-	ROD	EL
CP 102					100.78
	5.53	⟨106.31⟩			
MW-3			5.81		100.50
	5.76	⟨106.26⟩			
CP 102				5.48	100.78

EJS
DL

12-23-98

8/2859

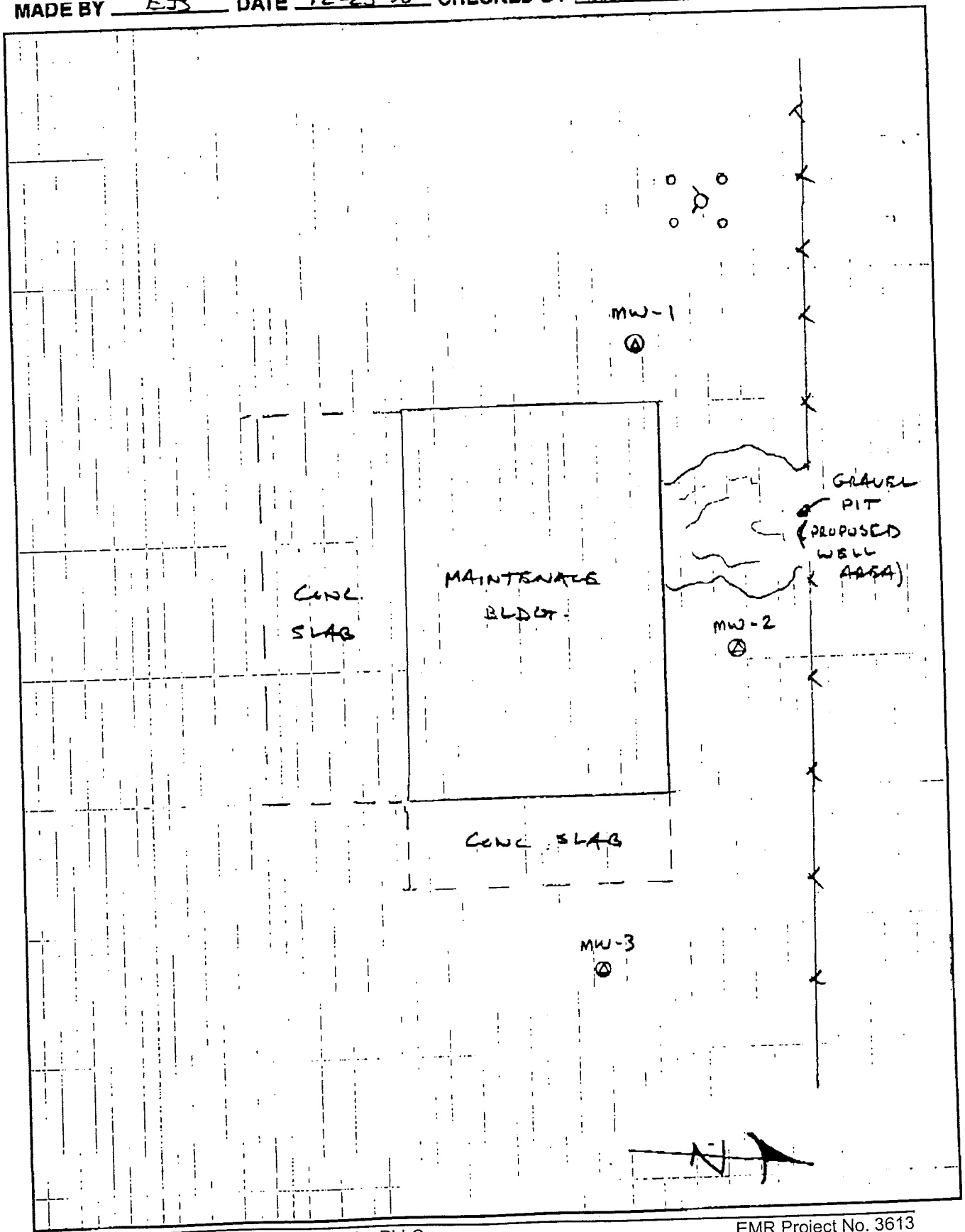
19

N. RIM OF PVC CASING

SHEET NO. 1 OF 1
JOB NO. _____

ENTRANCO

PROJECT EMR - PROVISIONERS
CALCULATIONS FOR DON CLABAUGH
MADE BY EJS DATE 12-23-98 CHECKED BY _____ DATE 12-23-98



APPENDIX E - Laboratory Reports- Post-Excavation Soil Samples

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

October 19, 1998

Greg McCormick
Environmental Management Resources, Inc.
2509 152nd Avenue NE, Suite B
Redmond, WA 98052

Re: Analytical Data for Project 3613
Laboratory Reference No. 9810-101

Dear Greg:

Enclosed are the analytical results and associated quality control data for samples submitted on October 14, 1998.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Chemist

Enclosures

Date of Report: October 19, 1998
Samples Submitted: October 14, 1998
Lab Traveler: 10-101
Project: 3613

NWTPH-Dx

Date Extracted:	10-15-98
Date Analyzed:	10-15-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	PX-1 (S.SIDEWALL)	PX-2 (BOTTOM)	PX-3 (E.SIDEWALL)
Lab ID:	10-101-01	10-101-02	10-101-03
Diesel Fuel:	660	ND	ND
PQL:	27	30	28
Heavy Oil:	2200	ND	ND
PQL:	55	60	56
Surrogate Recovery:			
o-Terphenyl	133%	83%	78%
Flags:	N		

Date of Report: October 19, 1998
Samples Submitted: October 14, 1998
Lab Traveler: 10-101
Project: 3613

NWTPH-Dx

Date Extracted:	10-15-98
Date Analyzed:	10-15-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	PX-4 (W.SIDEWALL)	PX-5 (N.SIDEWALL)
Lab ID:	10-101-04	10-101-05
Diesel Fuel:	ND	ND
PQL:	28	27
Heavy Oil:	ND	ND
PQL:	56	55
Surrogate Recovery:		
o-Terphenyl	85%	80%

Flags:

Date of Report: October 19, 1998
Samples Submitted: October 14, 1998
Lab Traveler: 10-101
Project: 3613

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	10-15-98
Date Analyzed:	10-15-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB1015S1
Diesel Fuel:	ND
PQL:	25
Heavy Oil:	ND
PQL:	50
Surrogate Recovery:	
o-Terphenyl	83%

Flags:

Date of Report: October 19, 1998
Samples Submitted: October 14, 1998
Lab Traveler: 10-101
Project: 3613

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	10-15-98	
Date Analyzed:	10-15-98	
Matrix:	Soil	
Units:	mg/Kg (ppm)	
Lab ID:	10-101-02	10-101-02 DUP
Diesel Fuel:	ND	ND
PQL:	25	25
RPD:	N/A	
Surrogate Recovery: o-Terphenyl	83%	88%
Flags:		

Date of Report: October 19, 1998
Samples Submitted: October 14, 1998
Lab Traveler: 10-101
Project: 3613

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-14&15-98
Date Analyzed: 10-14&15-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-101-2
Client ID: PX-2 (Bottom)

Analyte	Method	Result	PQL
Arsenic	6010B	ND	12
Barium	6010B	36	0.60
Cadmium	6010B	ND	0.60
Chromium	6010B	13	0.60
Lead	6010B	ND	6.0
Mercury	7471A	ND	0.30
Selenium	6010B	ND	12
Silver	6010B	ND	0.60

Date of Report: October 19, 1998
Samples Submitted: October 14, 1998
Lab Traveler: 10-101
Project: 3613

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	10-14&15-98
Date Analyzed:	10-14,15&16-98
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1014S1&MB1015S1

Analyte	Method	Result	PQL
Arsenic	6010B	ND	10
Barium	6010B	ND	0.50
Cadmium	6010B	ND	0.50
Chromium	6010B	ND	0.50
Lead	6010B	ND	5.0
Mercury	7471A	ND	0.25
Selenium	6010B	ND	10
Silver	6010B	ND	0.50

Date of Report: October 19, 1998
Samples Submitted: October 14, 1998
Lab Traveler: 10-101
Project: 3613

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 10-14&15-98
Date Analyzed: 10-14,15&16-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-084-2

Analyte	Sample Result	Duplicate Result	RPD	Flags	PQL
Arsenic	ND	ND	NA		10
Barium	64.6	60.6	6.4		0.50
Cadmium	ND	ND	NA		0.50
Chromium	17.3	16.2	6.9		0.50
Lead	48.2	48.3	0.10		5.0
Mercury	ND	ND	NA		0.25
Selenium	ND	ND	NA		10
Silver	ND	ND	NA		0.50

Date of Report: October 19, 1998
Samples Submitted: October 14, 1998
Lab Traveler: 10-101
Project: 3613

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 10-14&15-98
Date Analyzed: 10-14,15&16-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 09-084-2

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**78.6**	79	**79.3**	79	0.89	
Barium	100	**151**	87	**151**	87	0.17	
Cadmium	50	**47.5**	95	**46.3**	93	2.6	
Chromium	100	**111**	94	**115**	97	2.8	
Lead	250	**270**	89	**266**	87	1.2	
Mercury	1.0	**0.910**	91	**0.904**	90	0.66	
Selenium	100	**91.8**	92	**90.6**	91	1.3	
Silver	50	**42.9**	86	**42.6**	85	0.70	

Date of Report: October 19, 1998
Samples Submitted: October 14, 1998
Lab Traveler: 10-101
Project: 3613

Date Analyzed: 10-15-98

% MOISTURE

Client ID	Lab ID	% Moisture
PX-1 (S. Sidewall)	10-101-01	9.0
PX-2 (Bottom)	10-101-02	16
PX-3 (E. Sidewall)	10-101-03	11
PX-4 (W.Sidewall)	10-101-04	11
PX-5 (N. Sidewall)	10-101-05	9.0

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

M - Predominantly _____ range hydrocarbons present in the sample.

N - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample.

O - Hydrocarbons in the heavy oil range (>C24) are present in the sample which are elevating the diesel result.

P - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

X - Sample underwent silica gel cleanup procedures.

Y - Sample underwent acid cleanup procedures.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

Chain of Custody

Page _____ of _____

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Company: EMR, Inc.
Project No.: 3613
Project Name: Provisioners Express
Project Manager: Greg McCormick

Turnaround Requested
(Check One)
- ☐ Same Day
- ☐ 24 Hours
- ☒ 48 Hours
- ☐ Standard
- ☐ _____ (other)

Project Chemist: [illegible]

Laboratory No.

Requested Analysis

Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8240/624/8260	Halogenated Volatiles by 8260	Semivolatiles by 8270/625	PAHs by 8270/625	PCB's by 8081/608	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	% Moisture
PX-1 (S. Sidewall)	10-14-98		Soil	1			X										X
PX-2 (Bottom)	↓		↓	↓			X						X				X
PX-3 (E. Sidewall)							X										X
PX-4 (W. Sidewall)							X										X
PX-5 (N. Sidewall)	↓		↓	↓			X										X

RELINQUISHED BY	DATE	RECEIVED BY	DATE
[signature]	10-14-98	[signature]	[illegible]
FIRM EMR, Inc.	TIME 3:45p	FIRM [illegible]	TIME [illegible]
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

DISTRIBUTION LEGEND White - OnSite Copy Yellow - Report Copy Pink - Client Copy

Montgomery, Purdue, Blankinship & Austin, PLLC
Provisioners Express, Inc. Facility, Auburn, WA
EMR Project No. 3613

Attorney Work Product (DRAFT) Privileged and Confidential

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

November 6, 1998

David Welch
Environmental Management Resources, Inc.
2509 152nd Avenue NE, Suite B
Redmond, WA 98052

Re: Analytical Data for Project 3613
Laboratory Reference No. 9811-022

Dear David:

Enclosed are the analytical results and associated quality control data for samples submitted on November 4, 1998.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Chemist

Enclosures

Date of Report: November 6, 1998
Samples Submitted: November 4, 1998
Lab Traveler: 11-022
Project: 3613

NWTPH-Dx

Date Extracted:	11-4-98
Date Analyzed:	11-4&5-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	TR-1	TR-2
Lab ID:	11-022-01	11-022-02
Diesel Fuel:	ND	ND
PQL:	34	28
Heavy Oil:	ND	ND
PQL:	68	56
Surrogate Recovery:		
o-Terphenyl	90%	92%

Flags:

Date of Report: November 6, 1998
Samples Submitted: November 4, 1998
Lab Traveler: 11-022
Project: 3613

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	11-4-98
Date Analyzed:	11-4-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB1104S1
Diesel Fuel:	ND
PQL:	25
Heavy Oil:	ND
PQL:	50
Surrogate Recovery:	
o-Terphenyl	104%
Flags:	

Date of Report: November 6, 1998
Samples Submitted: November 4, 1998
Lab Traveler: 11-022
Project: 3613

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	11-4-98	
Date Analyzed:	11-4-98	
Matrix:	Soil	
Units:	mg/Kg (ppm)	
Lab ID:	11-019-03	11-019-03 DUP
Diesel Fuel:	ND	ND
PQL:	25	25
RPD:	N/A	
Surrogate Recovery:		
o-Terphenyl	88%	81%

Flags:

Date of Report: November 6, 1998
Samples Submitted: November 4, 1998
Lab Traveler: 11-022
Project: 3613

Date Analyzed: 11-4-98

% MOISTURE

Client ID	Lab ID	% Moisture
TR-1	11-022-01	27
TR-2	11-022-02	11

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

M - Predominantly _____ range hydrocarbons present in the sample.

N - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample.

O - Hydrocarbons in the heavy oil range (>C24) are present in the sample.

P - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

X - Sample underwent silica gel cleanup procedures.

Y - Sample underwent acid cleanup procedures.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

Chain of Custody

Page _____ of _____

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Report To: Montgomery, Purdue, Blankinship & Austin PLLC
Provisioners Express, Inc Facility, Auburn, WA

Company: EMR Inc.
Project No.: 3613
Project Name: Provisioners Express
Project Manager: David L. Welch

Turnaround Requested
(Check One)
- ☐ Same Day
- ☒ 24 Hours
- ☐ 48 Hours
- ☐ Standard
- ☐ _____ (other)

Project Chemist: DLW

Laboratory No.

Requested Analysis

Sample ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8240/624/8260	Halogenated Volatiles by 8260	Semivolatiles by 8270/625	PAHs by 8270/625	PCB's by 8081/608	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	% Moisture
	TR-1	11-4-98	10:50	Soil	1			X										X
	TR-2	11-4-98	11:45	Soil	1			X										X

RELINQUISHED BY	DATE	RECEIVED BY	DATE
D. Welch	11-4-98	[illegible]	11/4/98
FIRM EMR Inc.	TIME 12:35p	FIRM [illegible]	TIME [illegible]
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME

REVIEWED BY

DATE REVIEWED

COMMENTS:

EMR Project No. 3613

Attorney Work Product (DRAFT) Privileged and Confidential

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

December 18, 1998

David Welch
Environmental Management Resources, Inc.
2509 152nd Avenue NE, Suite B
Redmond, WA 98052

Re: Analytical Data for Project 3613
Laboratory Reference No. 9812-127

Dear David:

Enclosed are the analytical results and associated quality control data for samples submitted on December 16, 1998.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Chemist

Enclosures

Date of Report: December 18, 1998
Samples Submitted: December 16, 1998
Lab Traveler: 12-127
Project: 3613

NWTPH-Dx

Date Extracted: 12-16-98
Date Analyzed: 12-17-98

Matrix: Soil
Units: mg/Kg (ppm)

Client ID:	PX-9 (9")	PX-10 (9")	PX-12 (4")
Lab ID:	12-127-01	12-127-02	12-127-03
Diesel Fuel:	ND	120	5000
PQL:	27	28	140
Heavy Oil:	ND	250	8600
PQL:	55	57	110
Surrogate Recovery:			
o-Terphenyl	84%	83%	---
Flags:		N	S,N

Date of Report: December 18, 1998
Samples Submitted: December 16, 1998
Lab Traveler: 12-127
Project: 3613

NWTPH-Dx

Date Extracted:	12-16-98
Date Analyzed:	12-17-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Client ID:	PX-13 (5")
Lab ID:	12-127-04
Diesel Fuel:	2400
PQL:	140
Heavy Oil:	5500
PQL:	110
Surrogate Recovery:	
o-Terphenyl	---
Flags:	S,N

Date of Report: December 18, 1998
Samples Submitted: December 16, 1998
Lab Traveler: 12-127
Project: 3613

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-16-98
Date Analyzed:	12-17-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB1216S1
Diesel Fuel:	ND
PQL:	25
Heavy Oil:	ND
PQL:	50
Surrogate Recovery:	
o-Terphenyl	108%
Flags:	X

Date of Report: December 18, 1998
Samples Submitted: December 16, 1998
Lab Traveler: 12-127
Project: 3613

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	12-16-98	
Date Analyzed:	12-16-98	
Matrix:	Soil	
Units:	mg/Kg (ppm)	
Lab ID:	12-123-02	12-123-02 DUP
Diesel Fuel:	ND	ND
PQL:	25	25
RPD:	N/A	
Surrogate Recovery:		
o-Terphenyl	98%	112%
Flags:	Y	Y

Date of Report: December 18, 1998
Samples Submitted: December 16, 1998
Lab Traveler: 12-127
Project: 3613

Date Analyzed: 12-16-98

% MOISTURE

Client ID	Lab ID	% Moisture
PX-9 (9")	12-127-01	9.0
PX-10 (9")	12-127-02	12
PX-12 (4")	12-127-03	10
PX-13 (5")	12-127-04	11

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

M - Predominantly _____ range hydrocarbons present in the sample.

N - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample.

O - Hydrocarbons in the heavy oil range (>C24) are present in the sample.

P - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

X - Sample underwent silica gel cleanup procedures.

Y - Sample underwent acid cleanup procedures.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

Chain of Custody

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Company: EMR, Inc.

Project No.: 3613

Project Name: Provisioners Express

Project Manager: David Welch

Turnaround Request (Check One)
- [ ] Same Day
- [ ] 24 Hours
- [ ] 48 Hours
- [x] Standard
- [ ] ______ (other)

Project Chemist: [illegible]

Laboratory No.

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	% Moisture
	PX-S9 (9")	12/16/98		S	1			X											X
2	PX-S10 (9")	↓		S	1			X											X
3	PX-S12 (4")	↓		S	1			X											X
4	PX-S13 (5")	↓		S	1			X											X

corrections made 12/21/98. DB

RELINQUISHED BY	DATE	RECEIVED BY	DATE
[illegible signature]	12/16/98	[illegible signature]	12/16/98
FIRM: EMR, Inc.	TIME: 3:30 PM	FIRM: OnSite Env.	TIME: 3:30 PM
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

Montgomery, Purdue, Blankinship & Austin PLLC
Provisioners Express, Inc. Facility, Auburn, WA

EMR Project No. 3613

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

December 21, 1998

Greg McCormick
Environmental Management Resources, Inc.
2509 152nd Avenue NE, Suite B
Redmond, WA 98052

Re: Analytical Data for Project 3613
Laboratory Reference No. 9812-119

Dear Greg:

Enclosed are the analytical results and associated quality control data for samples submitted on December 15, 1998.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Chemist

Enclosures

Date of Report: December 21, 1998
Samples Submitted: December 15, 1998
Lab Traveler: 12-119
Project: 3613

NWTPH-Dx

Date Extracted:	12-16-98
Date Analyzed:	12-16-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	PX-6 (4')	PX-7 (4')	PX-8 (4')
Lab ID:	12-119-01	12-119-02	12-119-03
Diesel Fuel:	1300	2500	1500
PQL:	28	27	28
Heavy Oil:	260	630	3800
PQL:	57	54	57
Surrogate Recovery:			
o-Terphenyl	---	---	---
Flags:	F,N	F,N	F,N

Date of Report: December 21, 1998
Samples Submitted: December 15, 1998
Lab Traveler: 12-119
Project: 3613

NWTPH-Dx

Date Extracted:	12-16-98
Date Analyzed:	12-16-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	PX-11 (4')	PX-14 (4')
Lab ID:	12-119-04	12-119-05
Diesel Fuel:	1400	45
PQL:	28	28
Heavy Oil:	5400	160
PQL:	56	57
Surrogate Recovery:		
o-Terphenyl	---	86%
Flags:	F,X,N	

Date of Report: December 21, 1998
Samples Submitted: December 15, 1998
Lab Traveler: 12-119
Project: 3613

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-16-98
Date Analyzed:	12-16-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB1216S1
Diesel Fuel:	ND
PQL:	25
Heavy Oil:	ND
PQL:	50
Surrogate Recovery:	
o-Terphenyl	80%

Date of Report: December 21, 1998
Samples Submitted: December 15, 1998
Lab Traveler: 12-119
Project: 3613

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	12-15-98
Date Analyzed:	12-16-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	12-108-05	12-108-05 DUP
Diesel Fuel:	30.4	25.1
PQL:	25	25
RPD:	19	
Surrogate Recovery:		
o-Terphenyl	92%	97%

Flags:

Date of Report: December 21, 1998
Samples Submitted: December 15, 1998
Lab Traveler: 12-119
Project: 3613

Date Analyzed: 12-16-98

% MOISTURE

Client ID	Lab ID	% Moisture
PX-6 (4')	12-119-1	12
PX-7 (4')	12-119-2	8.0
PX-8 (4')	12-119-3	12
PX-11 (4')	12-119-4	11
PX-14 (4')	12-119-5	12

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

M - Predominantly _____ range hydrocarbons present in the sample.

N - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample.

O - Hydrocarbons in the heavy oil range (>C24) are present in the sample.

P - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

X - Sample underwent silica gel cleanup procedures.

Y - Sample underwent acid cleanup procedures.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Company: EMR Inc

Project No.: 3613

Project Name: Provisioners Express

Project Manager: Greg McCormick

Turnaround Request (Check One):
- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☒ Standard
- ☐ ________ (other)

Project Chemist: [illegible]

Laboratory No.: [illegible]

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Total RCRA Metals (8)	TCLP Metals	VPH	EPH									% Moisture
1	PA-16 (4')	12/15/08	2:50 pm	S	1			X																			X
2	PA-17 (4')	↓	↓	S	1			X																			X
3	PA-18 (4')	↓	↓	S	1			X																			X
4	PA-611 (4')	↓	↓	S	1			X																			X
5	PA-1014 (4')	↓	↓	S	1			X																			X
																											X

↑ changes made w/ labs per lab request. [illegible]

RELINQUISHED BY	DATE	RECEIVED BY	DATE
Greg McCormick	12/15/08	[illegible]	12/15/08
FIRM: EMR Inc	TIME: 5:50 pm	FIRM: OnSite	TIME: [illegible]
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME

REVIEWED BY

DATE REVIEWED

COMMENTS:

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

APPENDIX F - Laboratory Reports - Soil Disposal Profile

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

October 9, 1998

Greg McCormick
Environmental Management Resources, Inc.
2509 152nd Avenue NE, Suite B
Redmond, WA 98052

Re: Analytical Data for Project Provisioners
Laboratory Reference No. 9810-034

Dear Greg:

Enclosed are the analytical results and associated quality control data for samples submitted on October 5, 1998.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Chemist

Enclosures

14924 NE 31st Circle • Redmond, WA 98052 • (425) 883-3881 • Fax (425) 885-4603

Date of Report: October 9, 1998
Samples Submitted: October 5, 1998
Lab Traveler: 10-034
Project: Provisioners

NWTPH-Dx

Date Extracted:	10-05-98
Date Analyzed:	10-06-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Client ID:	SP-01
Lab ID:	10-034-01
Diesel Fuel:	12000
PQL:	270
Heavy Oil:	26000
PQL:	220
Surrogate Recovery:	
o-Terphenyl	---
Flags:	S,X,N

Date of Report: October 9, 1998
Samples Submitted: October 5, 1998
Lab Traveler: 10-034
Project: Provisioners

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	10-05-98
Date Analyzed:	10-05-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB1005S2
Diesel Fuel:	ND
PQL:	25
Heavy Oil:	ND
PQL:	50
Surrogate Recovery:	
o-Terphenyl	142%

Flags:

Date of Report: October 9, 1998
Samples Submitted: October 5, 1998
Lab Traveler: 10-034
Project: Provisioners

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	10-05-98	
Date Analyzed:	10-05-98	
Matrix:	Soil	
Units:	mg/Kg (ppm)	
Lab ID:	10-018-09	10-018-09 DUP
Diesel Fuel:	ND	ND
PQL:	25	25
RPD:	N/A	
Surrogate Recovery:		
o-Terphenyl	138%	141%

Flags:

Date of Report: October 9, 1998
Samples Submitted: October 5, 1998
Lab Traveler: 10-034
Project: Provisioners

NWTPH-Dx
SB/SBD QUALITY CONTROL

Date Extracted:	10-05-98	
Date Analyzed:	10-05-98	
Matrix:	Soil	
Units:	mg/Kg (ppm)	
Spike Level:	100 ppm	
Lab ID:	SB1005S1	SB1005S1 DUP
Diesel Fuel:	73.2	76.0
PQL:	25	25
Percent Recovery:	73	76
RPD:	3.8	
Surrogate Recovery:		
o-Terphenyl	126%	126%

Flags:

Date of Report: October 9, 1998
Samples Submitted: October 5, 1998
Lab Traveler: 10-034
Project: Provisioners

TCLP Metals
EPA 1311/6010B/7470A

Date Extracted: 10-6-98
Date Digested: 10-7-98
Date Analyzed: 10-7-98

Matrix: TCLP Extract
Units: mg/L (ppm)

Lab ID: 10-034-1
Client ID: SP-01

Analyte	Method	Result	PQL
Arsenic	6010B	ND	.40
Barium	6010B	ND	3.0
Cadmium	6010B	ND	.020
Chromium	6010B	ND	.020
Lead	6010B	ND	.20
Mercury	7470A	ND	.010
Selenium	6010B	ND	.40
Silver	6010B	ND	.020

Date of Report: October 9, 1998
Samples Submitted: October 5, 1998
Lab Traveler: 10-034
Project: Provisioners

TCLP Metals
EPA 1311/6010B/7470A
METHOD BLANK QUALITY CONTROL

Date Extracted:	10-6-98
Date Digested:	10-7-98
Date Analyzed:	10-7-98
Matrix:	TCLP Extract
Units:	mg/L (ppm)
Lab ID:	MB1007TCLP

Analyte	Method	Result	PQL
Arsenic	6010B	ND	0.40
Barium	6010B	ND	3.0
Cadmium	6010B	ND	0.020
Chromium	6010B	ND	0.020
Lead	6010B	ND	0.20
Mercury	7470A	ND	0.010
Selenium	6010B	ND	0.40
Silver	6010B	ND	0.020

Date of Report: October 9, 1998
Samples Submitted: October 5, 1998
Lab Traveler: 10-034
Project: Provisioners

TCLP Metals
EPA 1311/6010B/7470A
DUPLICATE QUALITY CONTROL

Date Extracted: 9-30-98
Date Digested: 10-4-98
Date Analyzed: 10-4-98

Matrix: TCLP Extract
Units: mg/L (ppm)

Lab ID: 09-151-1,2

Analyte	Sample Result	Duplicate Result	RPD	Flags	PQL
Arsenic	ND	ND	NA		0.40
Barium	ND	ND	NA		2.0
Cadmium	0.0228	0.0218	4.5		0.020
Chromium	0.0466	0.0510	9.0		0.020
Lead	0.530	0.516	2.7		0.20
Mercury	ND	ND	NA		0.010
Selenium	ND	ND	NA		0.40
Silver	ND	ND	NA		0.020

Date of Report: October 9, 1998
Samples Submitted: October 5, 1998
Lab Traveler: 10-034
Project: Provisioners

TCLP Metals
EPA 1311/6010B/7470A
MS/MSD QUALITY CONTROL

Date Extracted: 9-30-98
Date Digested: 10-4-98
Date Analyzed: 10-4-98

Matrix: TCLP Extract
Units: mg/L (ppm)

Lab ID: 09-151-1,2

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	4.0	**4.12**	103	**4.13**	103	0.097	
Barium	4.0	**3.32**	83	**3.26**	81	2.0	
Cadmium	2.0	**1.81**	89	**1.80**	89	0.34	
Chromium	4.0	**3.85**	95	**3.79**	94	1.5	
Lead	10	**9.11**	86	**9.03**	85	0.94	
Mercury	0.10	**0.0910**	91	**0.0906**	91	0.44	
Selenium	4.0	**4.22**	105	**4.07**	102	3.5	
Silver	2.0	**1.68**	84	**1.65**	83	2.0	

Date of Report: October 9, 1998
Samples Submitted: October 5, 1998
Lab Traveler: 10-034
Project: Provisioners

Date Analyzed: 10-5-98

% MOISTURE

Client ID	Lab ID	% Moisture
SP-01	10-034-01	7.0

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

M - Predominantly _____ range hydrocarbons present in the sample.

N - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample.

O - Hydrocarbons in the heavy oil range (>C24) are present in the sample which are elevating the diesel result.

P - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

X - Sample underwent silica gel cleanup procedures.

Y - Sample underwent acid cleanup procedures.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

Chain of Custody

Page ___ of ___

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Company: EMR

Project No.: ALL TO GET

Project Name: PROVISIONERS

Project Manager: MG MCCORMICK.

(Check One)
- ☑ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ Standard
- ☐ _____ (other)

Project Chemist: TAD

Laboratory No.

Sample Identification	Date Sampled	Time Sampled	Matrix	# Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8240/624/8260	Halogenated Volatiles by 8260	Semivolatiles by 8270/625	PAHs by 8270/625	PCB's by 8081/608	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	% Moisture
SP 01	10/5/98	-	-	1			✓							✓			✓

RELINQUISHED BY	DATE	RECEIVED BY	DATE
Mark M'Colley	10/5/98		
FIRM	TIME	FIRM	TIME
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS: LOOK FOR GAS.

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

Montgomery, Purdue, Blankinship & Austin PLLC
Provisioners Express, Inc. Facility, Arlington, WA
EMR Project No. 3513

Attorney Work Product (DRAFT) Privileged and Confidential

APPENDIX G - Laboratory Reports - Strataprobe Investigation

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

7110 38th Drive SE
Lacey, Washington 98503

Mobile Environmental Laboratories
Environmental Sampling Services

Telephone: 360-459-4670
Fax: 360-459-3432

December 8, 1998

David L. Welch
Environmental Management Resources Inc.
2509 152nd Ave. NE, Suite B
Redmond, WA 98052-5551

Dear Mr. Welch:

Please find enclosed the analytical data report for the Provisioners Express Project in Auburn, Washington. Soil samples were analyzed for Gasoline by NWTPH-Gx, Diesel by NWTPH-Dx, and Specific Halogenated Hydrocarbons and BTEX by Method 8021B on November 30, 1998.

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

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

Sincerely,

Sherry L. Chilcutt
Senior Chemist

QA/QC FOR ANALYTICAL METHODS

GENERAL

The TEG Northwest Laboratory quality assurance and quality control (QA/QC) procedures are conducted following the guidelines and objectives which meet or exceed certification/-accreditation requirements of California DOHS, Washington DOE, and Oregon DEQ. The Quality Control Program is a consistent set of procedures which assures data quality through the use of appropriate blanks, replicate analyses, surrogate spikes, and matrix spikes, and with the use of reference standards that meet or exceed EPA standards.

When analyses are taking place on-site with the mobile lab, the need for Field Blanks or Travel/Trip Blanks is eliminated. If there is going to be a delay before sample preparation for analysis, the sample is stored at 4^{O} C.

ANALYTICAL METHODS

TEG Northwest Labs use analytical methodologies which are in conformity with U. S. Environmental Protection Agency (EPA), Washington DOE, and Oregon DEQ methodologies. When necessary and appropriate due to the nature or composition of the sample, TEG may use variations of the methods which are consistent with recognized standards or variations used by the industry and government laboratories.

TPH-Gasoline, TPH-Diesel
(Gasoline and/or Diesel, Modified EPA 8015, NWTPH-Gx and NWTPH-Dx)

A check standard is run at the beginning of the day. 1) A close standard is run at the end of the day. 2) Both open and close standards must be within 15% of the continuing calibration curve value. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135% unless high sample concentrations interfere with the determination of the recovery percentage. A duplicate sample is run at a rate of 1 per 10 samples. At least 1 method blank is run per 20 samples analyzed.

Purgeable Volatile Halocarbons
(Chlorinated Hydrocarbons, EPA 601/8021B)

A calibration standard is run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The standard is rerun at the end of the day. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. At least 1 method blank is run per day.

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

TEG Job Number: S81125-2
Client: EMR, INC
Client Job Name: PROVISIONERS EXPRESS
Client Job Number: 3613-03

Analytical Results					DUPL	RPD
8010, µg/kg		MTH BLK	LCS	ST-9B	ST-9B	ST-9B
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	12/01/98	12/01/98	12/01/98	12/01/98	12/01/98
Date analyzed	Limits	12/01/98	12/01/98	12/01/98	12/01/98	12/01/98
Moisture, %				16%	16%	
Chloromethane	250	nd		nd	nd	
Bromomethane	250	nd		nd	nd	
Vinyl chloride	250	nd		nd	nd	
Chloroethane	250	nd		nd	nd	
cis-1,2-Dichloroethene	250	nd		nd	nd	
1,1-Dichloroethene	250	nd	65%	nd	nd	
Methylene Chloride	250	nd		nd	nd	
trans-1,2-Dichloroethene	250	nd		nd	nd	
1,1-Dichloroethane	250	nd		nd	nd	
Chloroform	50	nd		nd	nd	
1,1,1-Trichloroethane	50	nd		nd	nd	
Carbontetrachloride	50	nd		nd	nd	
1,2-Dichloroethane	250	nd		nd	nd	
Trichloroethene	50	nd	81%	nd	nd	
1,2-Dichloropropane	250	nd		nd	nd	
Bromodichloromethane	250	nd		nd	nd	
cis-1,3-Dichloropropene	250	nd		nd	nd	
trans-1,3-Dichloropropene	250	nd		nd	nd	
Chlorobenzene	250	nd	91%	nd	nd	
1,1,2-Trichloroethane	50	nd		nd	nd	
Tetrachloroethene	50	nd		nd	nd	
Dibromochloromethane	250	nd		nd	nd	
Bromoform	250	nd		nd	nd	
1,1,2,2-Tetrachloroethane	250	nd		nd	nd	
1,1,1,2-Tetrachloroethane	250	nd		nd	nd	
Bromobenzene	250	nd		nd	nd	
1,2,3-Trichloropropane	250	nd		nd	nd	
Dibromomethane	250	nd		nd	nd	
m-Dichlorobenzene	50	nd		nd	nd	
p-Dichlorobenzene	50	nd		nd	nd	
o-Dichlorobenzene	50	nd		nd	nd	
Benzene	50	nd	73%	nd	nd	
Toluene	50	nd	81%	290	310	7%
Ethylbenzene	50	nd		7,300	8,100	10%
Xylenes	50	nd		30,000	30,000	0%
Surrogate recoveries:						
Bromochloromethane		107%	105%	106%	105%	
1,4-Dichlorobutane		102%	104%	103%	101%	
Bromochloropropane		98%	101%	106%	99%	
Trifluorotoluene		100%	102%	105%	91%	
Bromofluorobenzene		107%	101%	C	C	

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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

TEG Job Number: S81125-2
Client: EMR, INC
Client Job Name: PROVISIONERS EXPRESS
Client Job Number: 3613-03

Analytical Results

NWTPH-Dx, mg/kg		MTH BLK	LCS	ST-1A	ST-4A	ST-5A
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	11/30/98	11/30/98	11/30/98	11/30/98	11/30/98
Date analyzed	Limits	11/30/98	11/30/98	11/30/98	11/30/98	11/30/98
Moisture, %				9%	9%	12%
Kerosene/Jet fuel	20	nd		nd	nd	nd
Diesel/Fuel oil	20	nd	113%	58	nd	390
Heavy oil	50	nd		75	nd	1,200
Surrogate recoveries:						
Fluorobiphenyl		97%	108%	92%	99%	102%
o-Terphenyl		97%	C	101%	101%	103%

Data Qualifiers and Analytical Comments

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

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

TEG Job Number: S81125-2
Client: EMR, INC
Client Job Name: PROVISIONERS EXPRESS
Client Job Number: 3613-03

Analytical Results

NWTPH-Dx, mg/kg		ST-6A	ST-7A	ST-8A	ST-9A	ST-9B	ST-15A
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	11/30/98	11/30/98	11/30/98	11/30/98	11/30/98	11/30/98
Date analyzed	Limits	11/30/98	11/30/98	11/30/98	11/30/98	11/30/98	11/30/98
Moisture, %		11%	9%	11%	11%	16%	9%
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd	nd
Diesel/Fuel oil	20	nd	nd	58	48	550	nd
Heavy oil	50	nd	nd	86	nd	290	nd
Surrogate recoveries:							
Fluorobiphenyl		98%	100%	97%	96%	106%	101%
o-Terphenyl		100%	103%	105%	103%	121%	104%

Data Qualifiers and Analytical Comments

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

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

TEG Job Number:	S81125-2
Client:	EMR, INC
Client Job Name:	PROVISIONERS EXPRESS
Client Job Number:	3613-03

Analytical Results			DUPL
NWTPH-Dx, mg/kg		ST-16A	ST-16A
Matrix	Soil	Soil	Soil
Date extracted	Reporting	11/30/98	11/30/98
Date analyzed	Limits	11/30/98	11/30/98
Moisture, %		11%	11%
Kerosene/Jet fuel	20	nd	nd
Diesel/Fuel oil	20	53	48
Heavy oil	50	nd	nd
Surrogate recoveries:			
Fluorobiphenyl		96%	102%
o-Terphenyl		104%	105%

Data Qualifiers and Analytical Comments

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

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

TEG Job Number:	S81125-2
Client:	EMR, INC
Client Job Name:	PROVISIONERS EXPRESS
Client Job Number:	3613-03
Printed:	12/8/98 13:53

Analytical Results				DUPL	RPD
NWTPH-Gx / BTEX (8020)		MTH BLK	ST-9B	ST-9B	ST-9B
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	12/01/98	12/01/98	12/01/98	12/01/98
Date analyzed	Limits	12/01/98	12/01/98	12/01/98	12/01/98
Moisture, %			16%	16%	
NWTPH-Gx, mg/kg					
Mineral spirits/Stoddard solvent	5.0	nd	14,000	14,000	0%
Gasoline	5.0	nd	nd	nd	
Surrogate recoveries:					
Trifluorotoluene		93%	90%	95%	
Bromofluorobenzene		95%	C	C	

Data Qualifiers and Analytical Comments

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

Attorney Work Product **(DRAFT)** **Privileged and Confidential**

teg TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES

CHAIN-OF-CUSTODY RECORD

Montgomery, Purdue, Blankinship & Austin, PLLC
Provisioners Express, Inc. Facility, Auburn, WA

EMR Project No. 3613

CLIENT: [illegible]
ADDRESS: 2509 [illegible]
PHONE: 425 [illegible] FAX: [illegible]
CLIENT PROJECT #: [illegible] PROJECT MANAGER: [illegible]

DATE: [illegible] PAGE 1 OF 1
PROJECT NAME: [illegible]
LOCATION: [illegible]
COLLECTOR: [illegible] DATE OF COLLECTION [illegible]

ANALYSES: VOA 601/8010, VOA 602/8020, VOA 624/8240, Semi Vol 625/8270, TPH 418.1, TPH 8015 (gasoline), TPH (8015 (diesel)), TPH 8015 (3 & 4), PAH 610/8100, PEST/PCBs 8080, HEX CHROME, ORGANIC LEAD, TOTAL LEAD, pH, ASBESTOS, [illegible], [illegible], [illegible], [illegible]

Sample Number	Depth	Time	Sample Type	Container Type	Field Notes	Total Number of Containers	Laboratory Note Number
ST-1A	6.5'		[illegible]	[illegible]		1	
ST-3A	5.5					1	
ST-4A	6.0'						
ST-5A	6.0'						
ST-6A	5.0						
ST-7A	5.0						
ST-8A	6.0'						
ST-9A	4.0						
ST-9B	6.5				[illegible]		
ST-10A	6.5'				[illegible]	[illegible]	
ST-11A	4.0'				[illegible]		
ST-12A	6.5'						
ST-14A	6.5'						
ST-15A	5.0'						
ST-16A	4.0						

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[illegible]	[illegible]	[illegible]	[illegible]
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES: [illegible]

APPENDIX H - Laboratory Reports - Groundwater Samples

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

December 30, 1998

David Welch
Environmental Management Resources, Inc.
2509 152nd Avenue NE, Suite B
Redmond, WA 98052

Re: Analytical Data for Project 3613-02
Laboratory Reference No. 9812-169

Dear David:

Enclosed are the analytical results and associated quality control data for samples submitted on December 22, 1998.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Chemist

Enclosures

Date of Report: December 30, 1998
Samples Submitted: December 22, 1998
Lab Traveler: 12-169
Project: 3613-02

NWTPH-Dx

Date Extracted:	12-28-98
Date Analyzed:	12-28&30-98
Matrix:	Water
Units:	mg/L (ppm)

Client ID:	MW-1	MW-2	MW-3
Lab ID:	12-169-01	12-169-02 ACU	12-169-03
Diesel Fuel:	ND	0.25	ND
PQL:	0.25	0.25	0.25
Heavy Oil:	ND	ND	ND
PQL:	0.50	0.50	0.50
Surrogate Recovery:			
o-Terphenyl	100%	82%	99%
Flags:		Y,T	

Date of Report: December 30, 1998
Samples Submitted: December 22, 1998
Lab Traveler: 12-169
Project: 3613-02

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-28-98
Date Analyzed:	12-28-98
Matrix:	Water
Units:	mg/L (ppm)
Lab ID:	MB1228W1
Diesel Fuel:	ND
PQL:	0.25
Heavy Oil:	ND
PQL:	0.50
Surrogate Recovery:	
o-Terphenyl	102%

Flags:

Date of Report: December 30, 1998
Samples Submitted: December 22, 1998
Lab Traveler: 12-169
Project: 3613-02

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-28-98
Date Analyzed:	12-30-98
Matrix:	Water
Units:	mg/L (ppm)
Lab ID:	MB1228W1 ACU
Diesel Fuel:	ND
PQL:	0.25
Heavy Oil:	ND
PQL:	0.50
Surrogate Recovery:	
o-Terphenyl	94%
Flags:	Y

Date of Report: December 30, 1998
Samples Submitted: December 22, 1998
Lab Traveler: 12-169
Project: 3613-02

NWTPH-Dx
SB/SBD QUALITY CONTROL

Date Extracted:	12-14-98	
Date Analyzed:	12-14-98	
Matrix:	Water	
Units:	mg/L (ppm)	
Spike Level:	1.00 ppm	
Lab ID:	SB1214W1	SB1214W1 DUP
Diesel Fuel:	1.26	1.29
PQL:	0.25	0.25
Percent Recovery:	126	129
RPD:	2.4	
Surrogate Recovery:		
o-Terphenyl	87%	92%

Flags:

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

M - Predominantly _____ range hydrocarbons present in the sample.

N - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample.

O - Hydrocarbons in the heavy oil range (>C24) are present in the sample.

P - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical diesel.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

X - Sample underwent silica gel cleanup procedures.

Y - Sample underwent acid cleanup procedures.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

Chain of Custody

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Company: EMR, Inc.
Project No.: 3613-02
Project Name: PROVISIONERS EXPRESS
Project Manager: DAVID A. WELCH

(Check One)
- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☒ Standard
- ☐ _____ (other)

Project Chemist:

Laboratory No.

	Sample Identification	Date Sampled	Time Sampled	Matrix	# Containers	NWTPH-HCID	NWTPH-Gx BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 3270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	% Moisture
1	MW-1	12-23-98	3:05 pm	W	1			X											
2	MW-2	12-23-98	3:25 pm	W	1			X											
3	MW-3	12-23-98	3:45 pm	W	1			X											

RELINQUISHED BY	DATE	RECEIVED BY	DATE
	12-23-98		
FIRM: EMR, Inc.	TIME: 5:15 pm	FIRM:	TIME:
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

DISTRIBUTION LEGEND White - OnSite Copy Yellow - Report Copy Pink - Client Copy

Montgomery, Purdue, Blankinship & Austin PLLC
Provisioners Express Inc. Facility, Auburn, WA
EMR Project No. 3613

Attorney Work Product (DRAFT) Privileged and Confidential