Environmental Site Assessment

Chevron Service Station 9-5311
1018 Plum Street
Olympia, Washington
10/5/1995

Prepared for

Chevron U.S.A. Products Company

October 5, 1995

Prepared by

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Project 520-120.1B

PACIFIC
ENVIRONMENTAL
GROUP, INC.

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EXECUTIVE SUMMARY

At the request of Chevron U.S.A. Products Company, Pacific Environmental Group, Inc. (PACIFIC) performed an environmental investigation during construction activities at Chevron Service Station 9-5311 in Olympia, Washington. Construction activities included removing and reinstalling the pump islands and fuel delivery piping, adding a new 10,000-gallon underground storage tank (UST) south of the existing USTs, and removing and replacing the 1,000-gallon used oil UST located in the central portion of the site. Construction activities were performed by A. L. Sleister and Sons Construction, Inc. (Sleister) of Mukilteo, Washington. PACIFIC performed investigative activities between April 3 and May 30, 1995.

Findings of this project are summarized below:

- Soil encountered during excavation activities consisted predominantly of gravelly, silty sands and sands in the trenches, and a wide variety of materials in the area of the new UST including clay, silt, sand, gravel and abundant organic material. All soil encountered was interpreted to be fill material.
- Groundwater was present in the UST excavations at depths ranging from four to eight feet below grade.
- Approximately 294,000 gallons of groundwater was pumped from the gasoline UST excavation into three portable storage tanks (Baker Tanks) on site and treated using a portable air sparging unit. Treated groundwater was discharged on site to the storm water drainage system with approval from the Washington State Department of Ecology.
- Laboratory analytical data indicates no detectable concentrations of total petroleum hydrocarbons as gasoline (TPH-gasoline), or benzene, toluene, ethylbenzene and xylenes (BTEX) compounds were present in the soil samples collected from the excavation for the new gasoline UST. Total lead was detected in one of the gasoline UST excavation samples at a concentration of 77 parts per million (ppm).
- Analytical data further indicates soil samples collected from the fuel delivery line trenching and beneath the pump islands contained concentrations of TPH-gasoline ranging from non-detectable levels to 9,900 ppm,

concentrations of BTEX compounds ranging from non-detectable levels to 990 ppm, and concentrations of total lead ranging from non-detectable levels to 37 ppm.

- Stockpiled soil which was analyzed and confirmed to contain no detectable concentrations of hydrocarbons was used on site as backfill material. Stockpiled soil which was analyzed and confirmed to contain concentrations of hydrocarbons below Model Toxics Control Act (MTCA) Method A cleanup standards was transported to Associated Sand and Gravel in Everett, Washington to be placed in their landfill. Stockpiled soil which was analyzed and confirmed to be above MTCA Method A cleanup standards was transported to TPS Technologies, Inc./Woodworth of Tacoma, Washington.

This summary is provided as an introduction to the site investigation report. The information presented should only be used in conjunction with the entire report document. A detailed description of the investigation including background, site conditions, investigative procedures, findings and conclusions are presented in the report.

1.0 INTRODUCTION

1.1 Purpose and Scope of Work

This report presents the results of investigative and remedial activities conducted by Pacific Environmental Group, Inc. (PACIFIC) at Chevron Service Station 9-5311 located in Olympia, Washington (Figures 1 and 2). The purpose of this investigation was to assess and document soil quality with respect to hydrocarbons at the site. Services were provided by PACIFIC under Chevron Contract No. CB6C930506NWX, Release No. 2985970.

The scope of work for the investigation consisted of the following tasks as outlined in PACIFIC's workplan dated April 5, 1995:

- Prepare a site safety plan for the site in accordance Washington Administrative Code (WAC) Chapter 296-62.
- Obtain approval from the Washington State Department of Ecology (Ecology) to discharge water generated from de-watering activities into the storm water drainage system.
- Screen soil samples for organic vapors using a portable photoionization detector (PID) during excavation activities and segregate the soil into separate stockpiles.
- Inspect the used oil underground storage tank (UST) for evidence of damage or leakage following removal.
- Perform ambient air monitoring on site during excavation activities.
- Collect soil samples from the trenches and excavations in accordance with Washington State Department of Ecology requirements.
- Design and implement a temporary water treatment system to treat water generated on site in order to comply with discharge requirements.
- Submit selected soil and water samples for laboratory analysis.
- Evaluate data and prepare this report.

2.0 BACKGROUND

2.1 Site Description

Chevron Service Station 9-5311 is situated at the northeast corner of the intersection of Plum Street and Union Avenue in Olympia, Washington (Figure 1). The service station facility includes three 10,000-gallon USTs containing regular, unleaded, and supreme unleaded gasoline, and one 1,000-gallon UST containing used oil. During the course of this investigation, a new 10,000-gallon UST was added south of the existing UST complex.

Topography is relatively flat across the site. Moxlie Creek is located approximately 500 feet south of the site. Capitol Lake is located approximately 3,300 feet west of the site. The site elevation is approximately 20 feet above mean sea level. Surrounding land use is primarily commercial. The site layout is shown on Figure 2.

2.2 Previous Investigations

PACIFIC performed an environmental investigation at the site during Stage II vapor recovery installation activities. Results of this investigation were submitted to Chevron in a report titled "*Stage II Vapor Recovery System Installation*," dated August 4, 1993, and are summarized below:

- Analytical results for four soil samples, located around the pump islands and adjacent trenching, indicated that total petroleum hydrocarbons as gasoline (TPH-gasoline) concentrations exceeded the Washington State Model Toxics Control Act (MTCA) Method A cleanup level.
- Analytical results further indicated a xylenes concentration exceeding the MTCA Method A cleanup level was reported in one of the above-referenced soil samples.

PACIFIC is not aware of any other environmental investigations previously performed at this site.

3.0 METHODS

3.1 Trench Excavation and UST Addition

In order to remove and replace the fuel delivery and vapor recovery lines, trenches were excavated along the pump island locations and extended to join the UST complex. All three existing fuel USTs were partially uncovered. In addition, trenches were excavated to accommodate drainage pipes, electrical conduits, and UST vent lines. The trenching ranged from 4 to 23 feet wide, with depths ranging from 2 to 3 feet below grade. Excavated soil consisted predominantly of silty, gravelly sand and sand. Eleven product dispensers along with the associated concrete islands were completely removed.

Material removed from the top of the UST complex consisted primarily of pea-gravel. During the installation of the new 10,000-gallon fuel UST, approximately 400 cubic yards of soil was excavated south of the existing USTs. Soil encountered while excavating for the new UST consisted of a variety of materials including clay, silt, sand, gravel, and abundant organic materials. The dimensions of the new UST excavation were approximately 31 feet by 45 feet by 16 feet deep.

3.2 Used Oil UST Removal and Replacement

The used oil UST was removed on May 5, 1995. Prior to its removal, Sleister emptied the UST and placed dry ice in it to render the UST inert. The UST was removed from the excavation and taken off-site before a PACIFIC representative could inspect it. According to Sleister, the tank was in good condition. The former UST was replaced with a 1,000-gallon double-wall fiberglass UST. The final dimensions of the used oil UST excavation were approximately 18 feet by 9 feet by 8 feet deep

3.3 Soil Screening and Sampling

Excavated soil and trenches were field screened for the presence of volatile organic compounds (VOCs) using a Thermo Environmental Instruments Inc. Model 580B photoionization detector (PID) with a 10 electron volt lamp. This instrument has a detection limit ranging from 0.1 to 2,000 ppm. The results of this screening are considered to be semi-quantitative, since the PID does not provide compound-specific measurements. Soil samples

were collected from stockpiled soil, trenches and excavations on site based on field observations and in accordance with Washington State Department of Ecology (Ecology) requirements. Soil sampling and PID field screening methodology is presented in Appendix A. Soil sample locations are shown on Figure 2.

3.3.1 Test Pit

In an effort to characterize soil quality in the area of the new UST, a test pit was excavated south of the existing UST complex at the proposed location of the new UST. Two soil samples collected at depths of 5 and 15 feet below grade were collected and submitted for laboratory analysis.

3.3.2 Pump Island Excavations and Trenches

Soil with PID readings above background levels was identified in the immediate area of the product dispensers, and in the west portion of the fuel delivery line trenches, generally described as extending from the west end of the kiosk to the west ends of the trenches. PID readings in the trenches gradually increased from background levels near the kiosk up to 700 ppm in the west ends of the trenches. Sixteen soil samples were collected from the fuel delivery line trenches, UST vent line trench, and beneath the pump islands at depths ranging from 2 to 3 feet below grade and submitted for laboratory analysis.

3.3.3 Gasoline UST Excavation

Soil encountered during excavation activities for the new gasoline UST consisted of a wide variety of materials including clay, silt, sand, gravel and abundant organic material. Three soil samples for laboratory analysis were collected from the east, west and south sidewalls of the new UST excavation at depths ranging from seven to eight feet below grade. No samples were collected from the existing UST excavation as the pea-gravel fill material within the excavation was not representative of native soil.

3.3.4 Used Oil UST Excavation

The former used oil UST was emplaced in pea-gravel and soil encountered in the sidewalls of the excavation consisted primarily of sandy silt. Two sidewall samples, collected at a depth of five feet, and one bottom sample, collected from beneath the fill end of the UST at a depth of nine feet, were submitted for laboratory analysis.

3.4 Stockpile Soil Sampling

Based on PID readings and field observations, excavated soil from the construction activities was segregated into six stockpiles (SP1 through SP6) containing a total of approximately 745 cubic yards. Stockpile SP2 originated from the new UST excavation and contained soil suspected to be impacted by hydrocarbons. Stockpile SP1 also originated from the new UST excavation but contained soil suspected to be only marginally affected by hydrocarbons. Stockpile SP3 originated from trenching activities and contained soil suspected to free of hydrocarbons. Stockpiles SP4 and SP5 also originated from trenching activities but contained soil suspected to be impacted by hydrocarbons. Based on field observations, Stockpile SP4 was also suspected to contain a hydrocarbon heavier than gasoline. Stockpile SP6 originated from the UST vent line trench and contained soil suspected to free of hydrocarbons. All stockpiles were sampled in accordance with Ecology requirements.

3.5 Groundwater Sampling and Discharge

The elevated water table at the site made it necessary to de-water the gasoline UST complex during construction activities. Over the course of construction activities, Sleister pumped approximately 294,000 gallons of groundwater from the UST complex and stored the water in three 21,000-gallon on-site storage tanks (Baker tanks). Analytical chemistry data from an initial water sample indicated the groundwater had been impacted by hydrocarbons. This made it necessary for PACIFIC to implement a portable air sparging unit for purposes of treating the water. Utilizing the existing air compressor located in the service station garage, the water was treated by blowing air into the tanks through the water to volatilize and remove the hydrocarbons.

A total of 18 water samples were collected and submitted for analysis in accordance with Ecology discharge requirements. Discharge guidelines and approval were granted verbally by Norm Schenk during a telephone conversation with a PACIFIC representative on April 13, 1995. Prior to the discharge of each tank, confirmation water samples were collected and submitted for laboratory analysis. PACIFIC authorized discharge only if analytical data indicated TPH-gasoline and BTEX compounds were not detected in the confirmation samples. On May 9, 1995, one 21,000-gallon Baker tank was discharged without authority from PACIFIC. Analytical data indicated the confirmation sample for this Baker tank contained a concentration of benzene of 0.94 parts per billion (ppb). On May 18, 1995, another 21,000-gallon Baker tank was discharged without authority from PACIFIC. Analytical data indicated the confirmation sample for this Baker tank contained a concentration of toluene of 1.6 ppb. A total of 294,000 gallons of water was discharged on-site to the storm water drainage system.

4.0 QUANTITATIVE CHEMISTRY ANALYSIS

4.1 General Analytical Procedures

All soil and groundwater samples were analyzed by North Creek Analytical, Inc. of Bothell, Washington. Soil sample locations are shown on Figure 2. Laboratory methods, certified analytical reports and chain-of-custody documentation are presented in Appendix B. The results of these analyses are presented on Tables 1 through 3.

4.1.1 Soil Sample Analysis

Selected soil samples were analyzed for the following parameters:

- TPH-gasoline by Washington Method WTPH-G.
- BTEX compounds by EPA Method 8020.
- Total lead by EPA Method 7420.
- Hydrocarbon Identification by Washington Method WTPH-HCID.
- Diesel and Heavy Oil by Washington Method WTPH-diesel plus extended.

4.1.2 Baker Tank Analysis

Groundwater held in the Baker tanks was sampled and analyzed for the following parameters:

- TPH-gasoline by Washington Method WTPH-G.
- BTEX compounds by EPA Methods 8015/8020.

4.2 Analytical Results

A total of 24 discrete soil samples collected from on-site excavations and 27 soil samples collected from stockpiled soil on-site were submitted for laboratory analysis. In addition, a total of 18 water samples collected from three Baker Tanks on-site were submitted for laboratory analysis. Excavation soil sample locations are presented on Figure 2. The results of

soil analyses are presented in Tables 1 and 2. The results of water analyses are presented in Table 3.

4.2.1 Gasoline UST Excavation Soil Samples

Three sidewall soil samples collected at depths ranging from 7 to 8 feet below grade were analyzed for TPH-gasoline, BTEX compounds and total lead. No concentrations of TPH-gasoline or BTEX compounds were reported in these samples. Total lead was reported in soil sample ESW (7) at a concentration of 77 ppm.

4.2.2 Used Oil UST Excavation Soil Samples

Two sidewall soil samples collected at five feet below grade, and one bottom soil sample collected beneath the fill end of the former used oil UST at a depth of nine feet below grade were analyzed for TPH-gasoline, BTEX compounds, TPH-diesel, TPH-oil, and total lead. No concentrations of TPH-gasoline, TPH-oil, or BTEX compounds were reported in these samples. TPH-diesel was reported in soil sample UOW (5) at a concentration of 20 ppm. Total lead was reported in soil samples UON (5) and UOW (5) at concentrations of 15 and 13 ppm, respectively.

4.2.3 Trenches and Pump Island Excavations Soil Samples

Sixteen discrete soil samples collected from the fuel delivery line trenches, the vent line trench, and beneath the product islands were analyzed for TPH-gasoline, BTEX compounds, and total lead. Based on field observations, one of these samples was also analyzed for hydrocarbon identification (HCID). HCID analysis indicated this sample contained no detectable concentrations of gasoline, diesel, or heavy oil.

Soil samples collected from the fuel delivery line trenching and beneath the pump islands contained concentrations of TPH-gasoline ranging from non-detectable levels to 9,900 parts per million (ppm), concentrations of BTEX compounds ranging from non-detectable levels to 990 ppm, and concentrations of total lead ranging from non-detectable levels to 37 ppm.

The two soil samples collected from the vent line trench contained no reportable concentrations of TPH-gasoline or BTEX compounds. Total lead was detected in these two samples at concentrations of 11 and 12 ppm.

Soil samples collected from beneath the product islands contained concentrations of TPH-gasoline ranging from non-detectable levels to 2,100 ppm, concentrations of BTEX compounds ranging from non-detectable levels to 120 ppm, and concentrations of total lead ranging from non-detectable levels to 12 ppm.

4.2.4 Stockpiled Soil Samples

Twenty-four soil samples collected from Stockpiles SP1 through SP6 were analyzed for TPH-gasoline, BTEX compounds, and total lead. In addition, one soil sample collected from Stockpile SP4 was analyzed for HCID. A positive response for this sample (SP4-A) was indicated for TPH-gasoline and TPH-oil. Therefore, three subsequent samples were analyzed for TPH-diesel plus extended.

Concentrations of TPH-gasoline ranging from non-detectable levels to 32 ppm were reported in the soil samples collected from Stockpile SP1. Concentrations of BTEX compounds in these samples ranged from non-detectable levels to 0.24 ppm. Total lead was reported in these samples at concentrations ranging from non-detectable levels to 21 ppm.

Concentrations of TPH-gasoline ranging from 1.4 to 400 ppm were reported in the soil samples collected from Stockpile SP2. Concentrations of BTEX compounds in these samples ranged from non-detectable levels to 1.9 ppm. Concentrations of total lead in these samples ranged from 12 to 15 ppm.

Concentrations of TPH-gasoline ranging from 1.2 to 3.9 ppm were reported in the soil samples collected from Stockpile SP3. A xylenes concentration of 0.12 ppm was reported in one of these samples. Concentrations of total lead in these samples ranged from 13 to 19 ppm.

Concentrations of TPH-gasoline ranging from non-detectable levels to 16 ppm were reported in the soil samples collected from Stockpile SP4. Concentrations of BTEX compounds were not detected in these samples above the method reporting limits. Concentrations of total lead ranging from non-detectable levels to 63 ppm were reported in these samples. TPH-oil was reported in these samples at concentrations ranging from 88 to 240 ppm. TPH-diesel was reported in these samples at concentrations ranging from 15 to 88 ppm.

Concentrations of TPH-gasoline ranging from non-detectable levels to 5.4 ppm were reported in the soil samples collected from Stockpile SP5. Concentrations of BTEX compounds were not detected in these samples above the method reporting limits. Concentrations of total lead in these samples ranged from 15 to 16 ppm.

Concentrations of TPH-gasoline or BTEX compounds were not detected above the method reporting limits in the soil samples collected from Stockpile SP6. Concentrations of total lead in these samples ranged from 12 to 14 ppm.

4.2.5 Test Pit Samples

Two soil samples collected from the exploratory test pit were analyzed for TPH-gasoline, BTEX compounds, and total lead. Concentrations of TPH-gasoline or BTEX compounds

were not detected in these two samples above the method reporting limits. A total lead concentration of 14 ppm was reported in one of these two samples.

4.2.6 Baker Tank Water Samples

A total of eighteen water samples were collected from three 21,000-gallon Baker tanks to characterize the water for discharge to the storm water drainage system. The water samples were analyzed for TPH-gasoline and BTEX compounds. During construction activities and the removal of groundwater from the UST complex, three untreated groundwater samples were analyzed and yielded reportable TPH-gasoline concentrations ranging from 2,300 to 14,000 ppm. Concentrations of BTEX compounds in these samples ranged from 25 to 1,400 ppm. The Baker tank loads from which these water samples were collected, as well as all other Baker tank loads generated from de-watering activities, were treated using the portable air sparging system at the site. Confirmation samples were then collected and analyzed to verify the removal of all hydrocarbons, upon which time PACIFIC authorized the discharge of the water to the storm water drainage system. Refer to Table 3 for a complete Baker tank water sample results.

5.0 CONCLUSIONS

Soil encountered during excavation activities consisted predominantly of gravelly, silty sands and sands in the trenches, and a wide variety of materials in the area of the new UST including clay, silt, sand, gravel and abundant organic material. All soil encountered was interpreted to be fill material.

Groundwater was present in the UST excavations at depths ranging from approximately four to eight feet below grade.

Approximately 294,000 gallons of groundwater was pumped from the gasoline UST excavation into three portable storage tanks and treated using a portable air sparging unit. Treated groundwater was discharged on site to the storm water drainage system with approval from the Washington State Department of Ecology.

Laboratory analytical data indicates no detectable concentrations of TPH-gasoline, BTEX compounds, or total lead were present in the soil samples collected from the gasoline UST excavation or vent line trench.

Laboratory analytical data indicates no detectable concentrations of TPH-gasoline, BTEX compounds, or heavy oil were present in the soil samples collected from the used oil UST excavation. Concentrations of TPH-diesel and total lead were detected in on or more of these samples at concentrations below the Washington State Model Toxics Control Act (MTCA) Method A cleanup levels.

Laboratory analytical data indicates four soil samples collected from the west ends of the fuel delivery line trenches, one soil sample collected beneath the fuel delivery piping, and three soil samples collected beneath the central and northern pump islands contained concentrations of TPH-gasoline exceeding the MTCA Method A cleanup level. All but two of the samples collected beneath the pump islands and fuel delivery piping contained concentrations of one or more BTEX compounds exceeding MTCA Method A cleanup levels.

Concentrations of total lead were detected in half of the excavation/trench samples, however, none of these concentrations exceeded the MTCA Method A cleanup level.

Approximately 80 cubic yards of stockpiled soil which was analyzed and confirmed to contain no detectable concentrations of hydrocarbons was used on site as backfill material.

Approximately 415 cubic yards of stockpiled soil which was analyzed and confirmed to contain concentrations of hydrocarbons below Model Toxics Control Act (MTCA) Method A cleanup standards was transported to Associated Sand and Gravel in Everett, Washington to be placed in their landfill. Approximately 250 cubic yards of stockpiled soil which was analyzed and confirmed to be above MTCA Method A cleanup standards was transported to TPS Technologies, Inc./Woodworth and Company, Inc. of Tacoma, Washington.

6.0 PROFESSIONAL CERTIFICATION

Based on site conditions at the time work was initiated, all tasks were performed in accordance with generally accepted professional practices. Pacific Environmental Group, Inc. staff has prepared this environmental site assessment report under the professional supervision of the persons whose signatures appear hereon.

If you have any questions regarding the contents of this report, please call.

Sincerely,

Pacific Environmental Group, Inc.

Les Brewer
Staff Geologist

Ward Crell
Project Manager

TABLE 1
SOIL ANALYTICAL RESULTS - TRENCHES AND EXCAVATIONS

Chevron Service Station #9-5311
1018 Plum Street
Olympia, Washington

Sample I.D.	Location	Date	HCID (G,D,O) (ppm)	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
TP-1 (5)	Test Pit	04/11/95	NA	ND	NA	NA	ND	ND	ND	ND	14
TP-1 (15)	Test Pit	04/11/95	NA	ND	NA	NA	ND	ND	ND	ND	ND
WSW (7)	Gasoline UST Excavation	04/17/95	NA	ND	NA	NA	ND	ND	ND	ND	ND
SSW (8)	Gasoline UST Excavation	04/17/95	NA	ND	NA	NA	ND	ND	ND	ND	ND
ESW (7)	Gasoline UST Excavation	04/17/95	NA	ND	NA	NA	ND	ND	ND	ND	77
T-1 (2)	Trench Sample	04/27/95	NA	9,900	NA	NA	30	450	100	990	12
T-2 (2.5)	Trench Sample	04/27/95	NA	2.2	NA	NA	ND	ND	ND	ND	ND
T-4 (2)	Trench Sample	04/27/95	NA	5,000	NA	NA	8.7	140	39	370	37
T-5 (2)	Trench Sample	04/27/95	NA	ND	NA	NA	ND	ND	ND	ND	ND
T-6 (2)	Trench Sample	04/27/95	NA	520	NA	NA	0.53	9.8	4.3	37	13
T-7 (2)	Trench Sample	04/27/95	ND	2.0	NA	NA	ND	ND	ND	ND	ND
T-8 (2.5)	Trench Sample	04/27/95	NA	280	NA	NA	ND [1]	0.50	0.74	21	11
T-9 (3)	Trench Sample	04/27/95	NA	ND	NA	NA	ND	ND	ND	ND	11
T-10 (3)	Trench Sample	04/27/95	NA	440	NA	NA	ND [2]	ND [2]	ND [2]	ND [3]	ND
PI-3 (2)	Product Island	04/27/95	NA	2,100	NA	NA	ND [1]	ND [1]	ND [1]	11	ND
PI-5 (2)	Product Island	04/27/95	NA	1,800	NA	NA	1.7	38	10	120	ND
PI-8 (2.5)	Product Island	04/27/95	NA	450	NA	NA	ND [1]	5.3	1.5	25	12
PI-12 (2)	Product Island	04/27/95	NA	ND	NA	NA	ND	ND	ND	ND	ND

TABLE 1
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Olympia, Washington

Sample I.D.	Location	Date	HCID (G,D,O) (ppm)	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
PI-15 (2.5)	Product Island	04/27/95	NA	ND	NA	NA	ND	ND	ND	ND	ND
UON (5)	Used Oil UST Excavation	05/08/95	NA	ND	ND	ND	ND	ND	ND	ND	15
UOW (5)	Used Oil UST Excavation	05/08/95	NA	ND	20	ND	ND	ND	ND	ND	13
UOF (9)	Used Oil UST Excavation	05/08/95	NA	ND	ND	ND	ND	ND	ND	ND	ND
T-11 (2)	Trench Sample	05/10/95	NA	ND	NA	NA	ND	ND	ND	ND	11
T-12 (2.5)	Trench Sample	05/10/95	NA	ND	NA	NA	ND	ND	ND	ND	12
MTCA Method A Cleanup Levels:			**100 / 200**	**100**	**200**	**200**	**0.5**	**40**	**20**	**20**	**250**
Laboratory Reporting Limits:			**20,50,100**	**1.0**	**10**	**25**	**0.050**	**0.050**	**0.050**	**0.10**	**10**

Concentrations in ppm (mg/L).
ND - Not Detected.
NA - Not Analyzed for these parameters.
[1] - Reporting limit = 0.40.
[2] - Reporting limit = 0.080.
[3] - Reporting limit = 0.16.
For HCID analysis: g= Gasoline detected, d= Diesel detected, o= Oil detected.
Sample locations are shown on Figure 2.
Certified Analytical Reports are included as Appendix B.
TPH as HCID - Analysis by Washington Method WTPH-HCID.
TPH as Gasoline - Analysis by Washington Method WTPH-G.
TPH as Diesel and Heavy Oil - Analysis by Washington Method WTPH-D plus Extended.
BTEX Compounds - Analysis by EPA 8015/8020.
Total Lead - Analysis by EPA Method 7421.

TABLE 2
SOIL ANALYTICAL RESULTS - STOCKPILES

Chevron Service Station #9-5311
1018 Plum Street
Olympia, Washington

Sample I.D.	Date	TPH-HCID (G,D,O) (ppm)	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
SP1-A	04/13/95	NA	13	NA	NA	ND	ND	ND	ND	13
SP1-B	04/13/95	NA	ND	NA	NA	ND	ND	ND	ND	16
SP1-C	04/13/95	NA	ND	NA	NA	ND	ND	ND	ND	18
SP1-D	04/13/95	NA	1.6	NA	NA	ND	ND	ND	ND	21
SP1-E	04/13/95	NA	2.0	NA	NA	ND	ND	ND	ND	18
SP2-A	04/13/95	NA	16	NA	NA	ND	ND	ND	ND	12
SP2-B	04/13/95	NA	400	NA	NA	ND	ND	0.052	1.9	13
SP2-C	04/13/95	NA	43	NA	NA	ND	ND	ND	0.12	15
SP2-D	04/13/95	NA	88	NA	NA	ND	ND	ND	1.6	13
SP2-E	04/13/95	NA	1.4	NA	NA	ND	ND	ND	ND	13
SP1-F	04/24/95	NA	30	NA	NA	ND	ND	ND	0.24	ND
SP1-G	04/24/95	NA	32	NA	NA	ND	ND	ND	0.21	ND
SP1-H	04/24/95	NA	1.4	NA	NA	ND	ND	ND	ND	ND
SP1-I	04/24/95	NA	34	NA	NA	ND	ND	ND	0.24	ND
SP1-J	04/24/95	NA	3.3	NA	NA	ND	ND	ND	ND	ND
SP4-A	04/24/95	G,O	16	88	240	ND	ND	ND	ND	NA
SP3-A	05/08/95	NA	3.9	NA	NA	ND	ND	ND	0.12	19
SP3-B	05/08/95	NA	1.2	NA	NA	ND	ND	ND	ND	13

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Sample I.D.	Date	TPH-HCID (G,D,O) (ppm)	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
SP3-C	05/08/95	NA	1.9	NA	NA	ND	ND	ND	ND	14
SP6-A	05/10/95	NA	ND	NA	NA	ND	ND	ND	ND	14
SP6-B	05/10/95	NA	ND	NA	NA	ND	ND	ND	ND	13
SP6-C	05/10/95	NA	ND	NA	NA	ND	ND	ND	ND	12
SP5-A	05/15/95	NA	3.1	NA	NA	ND	ND	ND	ND	16
SP5-B	05/15/95	NA	ND	NA	NA	ND	ND	ND	ND	16
SP5-C	05/15/95	NA	5.4	NA	NA	ND	ND	ND	ND	15
SP4-B	05/17/95	NA	ND	15	88	ND	ND	ND	ND	ND
SP4-C	05/17/95	NA	1.6	32	180	ND	ND	ND	ND	63
MTCA Method A Cleanup Levels:		**100, 200**	**100**	**200**	**200**	**0.5**	**40**	**20**	**20**	**250**
Laboratory Reporting Limits:		**20,50,100**	**1.0**	**10**	**25**	**0.050**	**0.050**	**0.050**	**0.10**	**10**

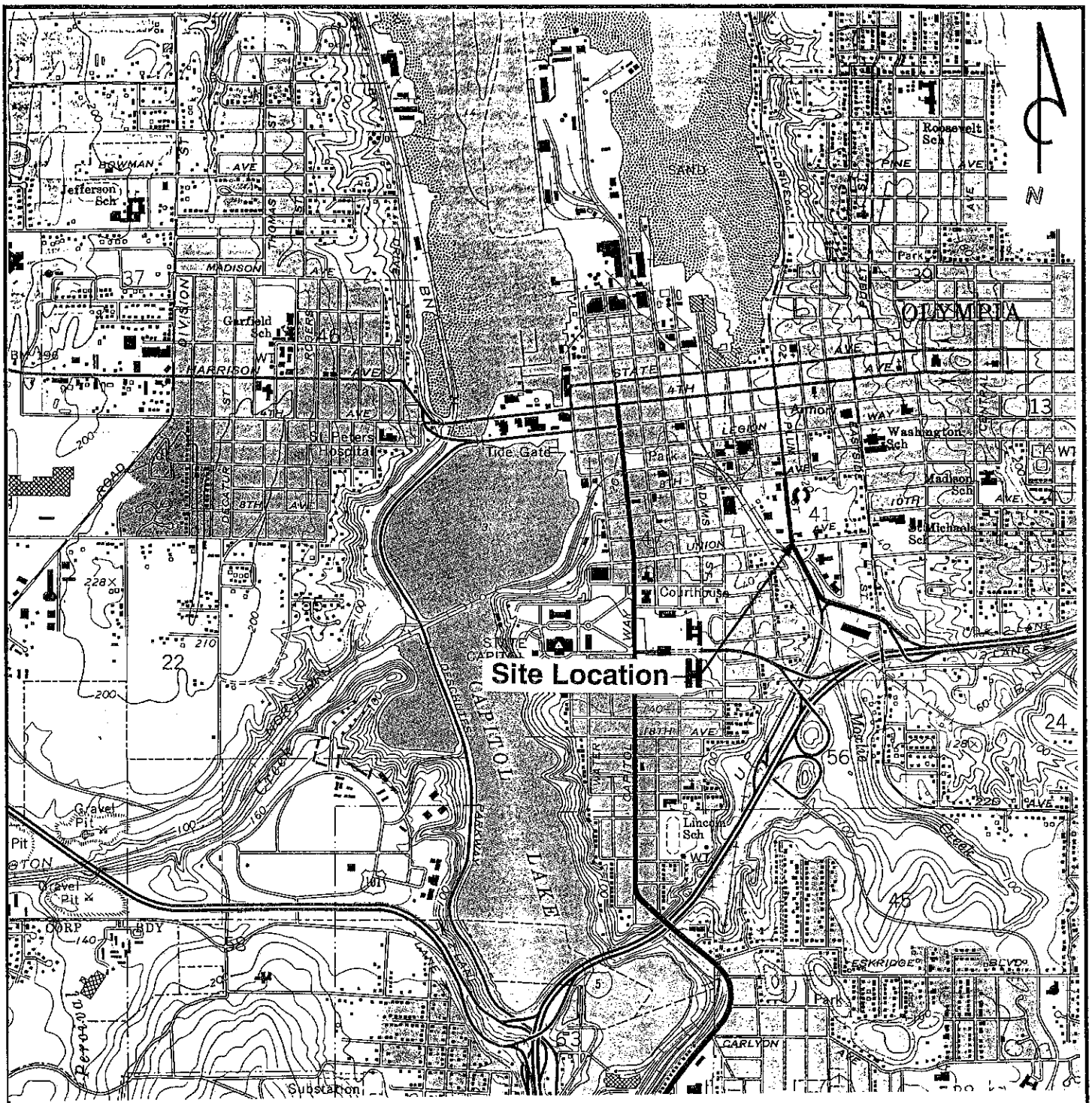
Concentrations in ppm (mg/L).
ND - Not Detected at laboratory reporting limits.
NA - Not Analyzed for these parameters.
For HCID analysis: g= Gasoline detected, d= Diesel detected, o= Oil detected.
Certified Analytical Reports are included in Appendix B.
TPH as HCID - Analysis by Washington Method WTPH-HCID.
TPH as Gasoline - Analysis by Washington Method WTPH-G.
TPH as Diesel and Heavy Oil - Analysis by Washington Method WTPH-D plus Extended.
BTEX Compounds - Analysis by EPA 8015/8020.
Total Lead - Analysis by EPA Method 7421.

TABLE 3
GROUNDWATER ANALYTICAL RESULTS - BAKER TANKS

Chevron Service Station #9-5311
1018 Plum Street
Olympia, Washington

Sample I.D.	Sample Date	TPH-Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
BT-1	04/05/95	14,000	120	140	110	1,400
BT-2	04/11/95	ND	ND	ND	ND	ND
BT-B1	04/14/95	2,300	200	140	ND	120
BT-B2	04/18/95	ND	ND	ND	ND	ND
BT-A1	04/20/95	ND	ND	ND	ND	ND
BT-C1	04/24/95	ND	ND	ND	ND	ND
BT-C2	04/27/95	8,600	100	610	25	720
BT-B3	04/27/95	ND	ND	ND	ND	ND
BT-C3	05/02/95	ND	ND	ND	ND	ND
BT-B4	05/04/95	ND	ND	ND	ND	ND
BT-C4	05/08/95	ND	0.94	ND	ND	ND
BT-B5	05/10/95	ND	ND	ND	ND	ND
BT-C5	05/15/95	ND	ND	ND	ND	ND
BT-B6	05/17/95	ND	ND	ND	ND	1.8
BT-C6	05/22/95	ND	ND	ND	ND	ND
BT-B7	05/26/95	ND	ND	1.6	ND	ND
BT-B8	05/30/95	ND	ND	ND	ND	ND
BT-C7	05/30/95	ND	ND	ND	ND	ND
MTCA Method A Cleanup Levels:		**1,000**	**50**	**40**	**30**	**20**
Laboratory Reporting Limits:	**02/09/95**	**50**	**0.50**	**0.50**	**0.50**	**1.0**

Concentrations in ppb (ug/L).
ND - Not Detected.
Certified Analytical Reports are included in Appendix B.
TPH as Gasoline - Analysis by Washington Method WTPH-G.
BTEX Compounds - Analysis by EPA 8015/8020.



REFERENCE:
USGS 7.5 MIN. TOPOGRAPHIC MAP
TITLED: **TUMWATER, WASHINGTON**
DATED: **1956** PHOTOREVISED: **1981**
COUNTY: **THURSTON**

SCALE: 1 to 24,000 (1 Inch = Approximately 2000 Feet)

QUADRANGLE LOCATION

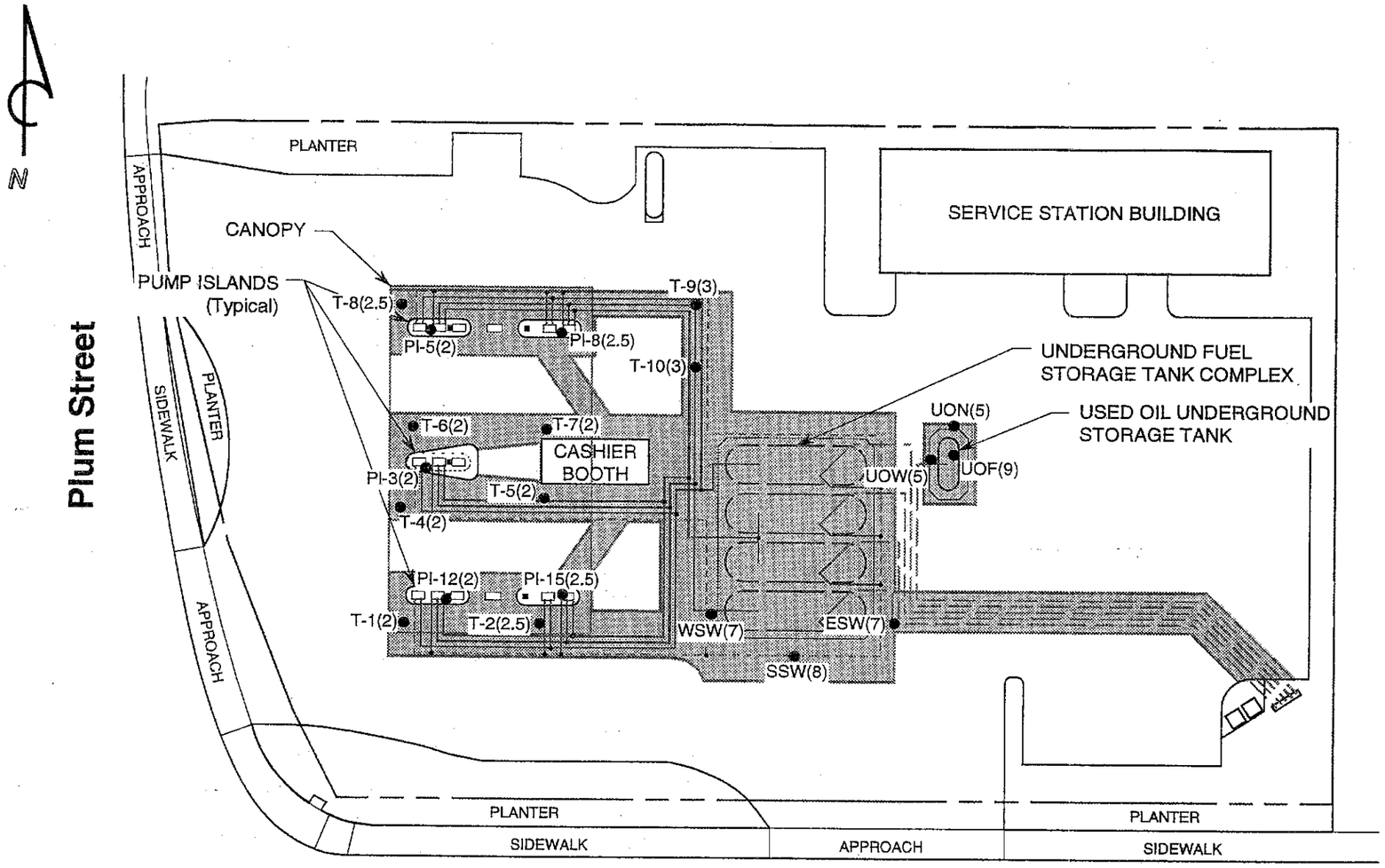
PACIFIC ENVIRONMENTAL GROUP, INC.

CHEVRON SERVICE STATION #9-5311
1018 Plum Street
Olympia, Washington

SITE LOCATION MAP

FIGURE: **1**

PROJECT: 520-120.1B



LEGEND

- PRODUCT LINES
- VAPOR RETURN LINES
- VENT LINES
- UOW(5) ● SOIL SAMPLING LOCATION AND DESIGNATION
- (5) SOIL SAMPLING DEPTH IN FEET
- APPROXIMATE LIMIT OF EXCAVATION

NOTE: Base Map Provided by GROUNDWATER TECHNOLOGY, INC.

PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE IN FEET
0 30 60

CHEVRON SERVICE STATION #9-5311
1018 Plum Street
Olympia, Washington

SOIL SAMPLE LOCATION MAP

FIGURE:
2
PROJECT:
520-120.1B