City Shop AND WASTEWATER PLANT # 2418 LS

Closure Site Assessment Report

For Removal of 2 UST's
At The Moxee Wastewater Treatment Facility,
Moxee, WA

C LS
2418
U1240

Prepared For:

Maxim Technologies, Inc.
P.O. Box 2887
Yakima, WA 98907

Prepared By:

SAGE Earth Sciences, Inc.
P.O. BOX 1644, ZILLAH, WA 98953
PHONE (509) 829-6400

June, 1996

Executive Summary

On May 13, 1996, Northwest Petroleum Equipment (NPE) and Tri-Valley Construction (TVC) decommissioned and removed two (2) Underground Storage Tanks (UST's) at the Moxee Wastewater Treatment Facility, Moxee, WA. The site is located at 7520 Postma Road, Moxee, WA. The WSDOE Site Identification Number is 002418. The tanks consisted of one (1) 1,000 gallon unleaded gasoline tank (Tank # 1001) and one (1) 1,000 gallon regular gasoline tank (Tank # 1002). The UST's were used to refuel vehicles and equipment.

Sage Earth Sciences, Inc. (Sage) performed site assessment services upon the removal of the tanks. Sage conducted field screening and sampling activities on May 13, 1996. Field screening was accomplished using a Flame Ionization Detector (FID). Soil and groundwater samples were submitted to Friedman and Bruya, Inc. (FBI), Seattle, WA for independent laboratory analysis.

Based upon field screening results, TVC excavated a total of approximately fifty (50) cubic yards of apparently impacted soil prior to sampling activities. The apparently impacted soil was placed upon a plastic liner for temporary storage at the site.

Analysis of soil samples collected within the tank excavations found no petroleum hydrocarbon concentrations in excess of the "Method A Soil Cleanup Levels" of WAC 173-340-740. However, analysis of a groundwater sample found gasoline, benzene, toluene, ethylbenzene, xylene and total lead concentrations in excess of the "Method A Groundwater Cleanup Levels of WAC 173-340-720. Analysis of samples collected from a stockpile of soil (approximately 50 cubic yards) generated during the tank removal and limited impacted soil removal process indicates that the soil stockpile as "Class 4 Soil".

Based upon the analytical results, Sage recommends additional investigation to determine the extent of petroleum impacted groundwater. Sage also recommends collection and analysis of an additional soil sample, from the western sidewall of the excavation, to determine petroleum concentrations in soil at this location. Upon completion of additional site characterization activities, an appropriate remediation method may be designed and implemented to contain the release and reduce petroleum and total lead concentrations to acceptable levels.

Sage recommends that the soil stockpile be treated and/or disposed of in accordance with the WSDOE "End Use Criteria for Petroleum Contaminated Soils".

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1.0 Introduction

1.1 Purpose

The purpose of this closure site assessment report is to describe findings and actions taken associated with the removal of two (2) Underground Storage Tanks (UST's) at the Wastewater Treatment Facility located in Moxee, WA. The investigation complies with regulatory requirements established by the Washington State Department of Ecology (WSDOE).

1.2 Scope of Work

Northwest Petroleum Equipment (NPE) of Selah, WA provided UST decommissioning services. Tri -Valley Construction (TVC) of Yakima, WA provided UST removal services. Sage Earth Sciences, Inc. (Sage) provided closure site assessment services upon removal of the UST's. Sage provided field screening services and collected representative soil samples in accordance with the WSDOE Guidance for Site Checks and Site Assessments for Underground Storage Tanks (February, 1991; 90-52, Revised October, 1992). Soil samples were submitted to Friedman and Bruya, Inc. (FBI), Seattle, WA. for independent laboratory analysis.

2.0 Background Information

2.1 Site Location

The facility is located at 7520 Postma Road, Moxee, WA. It is situated within the NE 1/4 of the NE 1/4, Section 2, Township 12 North, Range 19 East, Willamette Meridian. The site latitude is 42° 33' 45" and the longitude is 120° 23' 55". The location of the site is shown by Figure 1.

2.2 Site Description & Adjacent Land Use

The facility is owned and operated by the City of Moxee. The authorized site contact is Mr. Byron Adams. The property is occupied by a sewer/wastewater treatment facility which consists of a building, aeration lagoons and sludge dewatering cells. A maintenance shop is also located on the subject property. The facility layout and adjacent land use is shown by Figure 2.

The area surrounding the site is primarily rural residential and agricultural. Postma Road is located immediately north of the property. Moxee Drain lies immediately north of, and runs parallel to, Postma Road. The Simplot Soil Builders property lies east of the subject property. Burlington Northern Railroad tracks and Highway 24 lie south of the subject property. Beaudry Road lies west of the subject property. The East Valley Market lies southwest of the intersection of Beaudry Road and Highway 24.

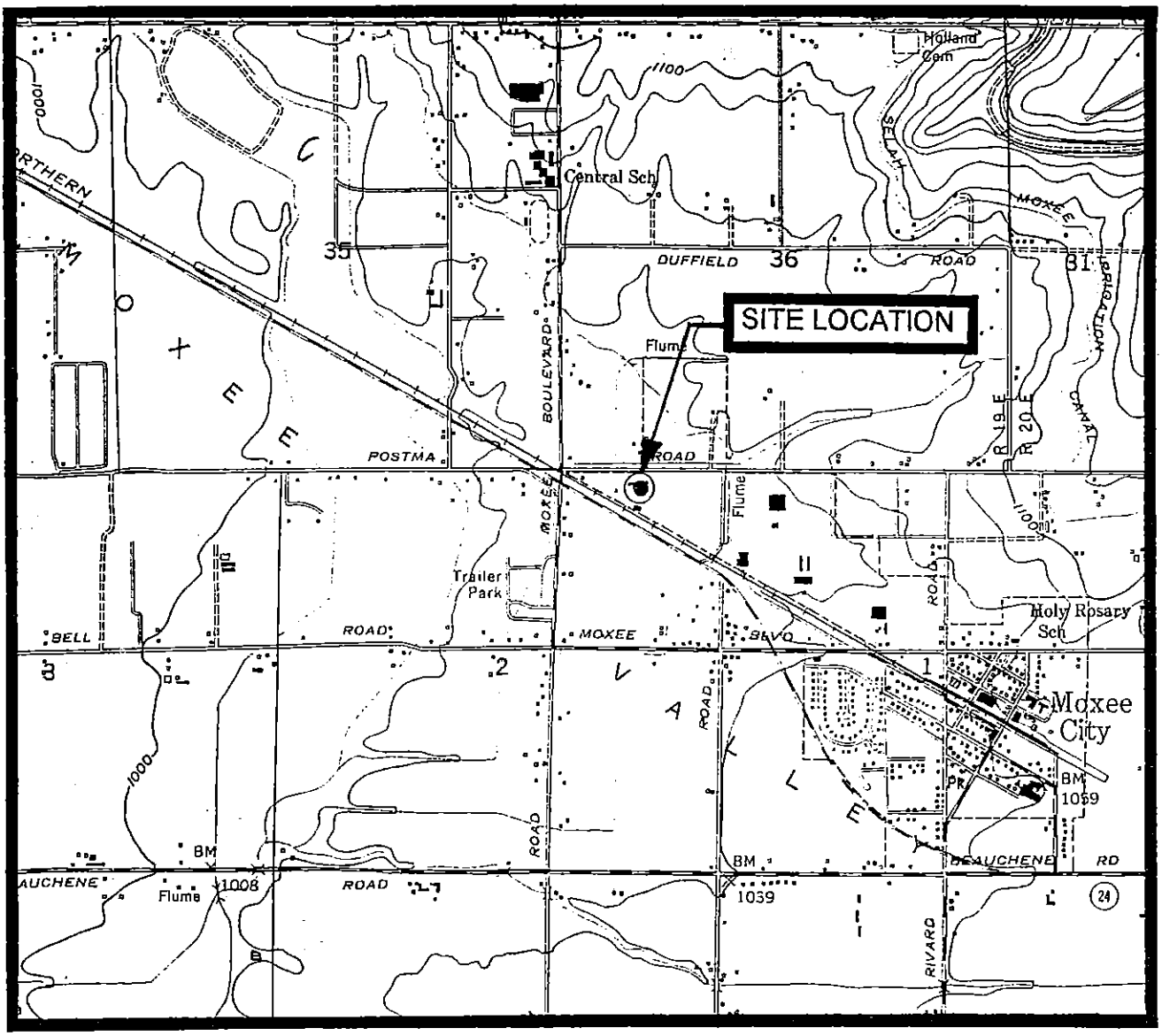


Figure 1. Site Location Map

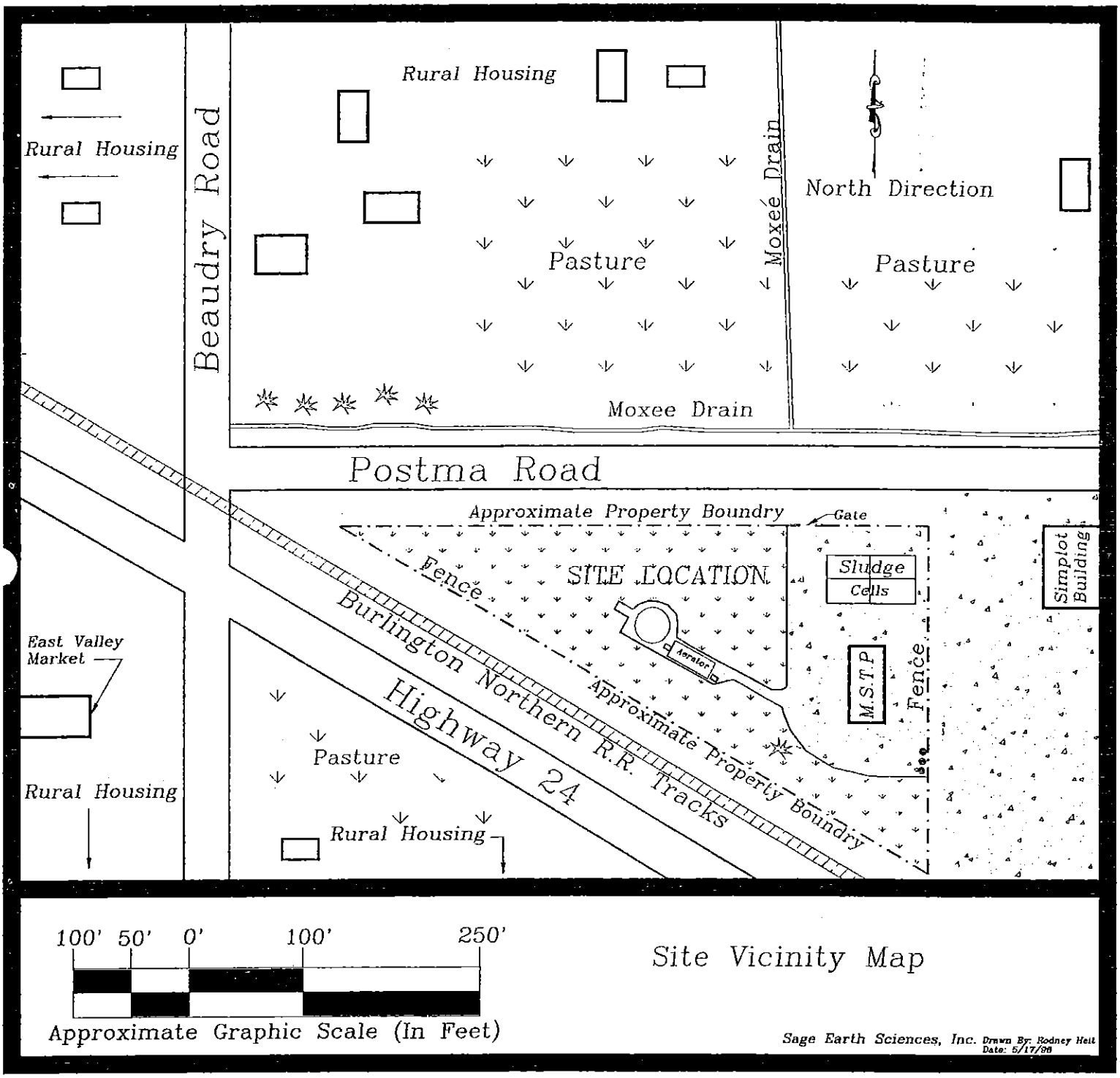


Figure 2. Site Vicinity Map

2.3 UST System Information

The WSDOE Site Identification Number is 002418. The UST system consisted of one (1) 1,000 gallon unleaded gasoline tank (Tank # 1001) and one (1) 1,000 gallon regular gasoline tank (Tank # 1002). These UST's were used to refuel City of Moxee vehicles and equipment. The UST system was installed in approximately 1977. The UST's were positioned approximately forty (40) feet south of the treatment plant building, near the southeast corner of the property, as shown by Figure 3.

2.4 Soils Description

Soil observed within the UST excavation consisted of a medium brown, clayey silt extending from below the asphalt paving to a depth of two and three-fourths (2.75) feet Below Ground Surface (BGS). This soil type is classified as "ML" according to the *Unified Soil Classification System*. A bluish-green silty clay underlies this soil unit and extends to a depth of six and one-half (6.5) feet BGS. This soil type is classified as "OL" according to the *Unified Soil Classification System*. Basalt, exhibiting platy jointing, is exposed at the floor of the excavation which lies at a depths between six and one-half (6.5) feet to seven (7) feet BGS. Soil descriptions are documented on the Soil Excavation Profile (Appendix A).

2.5 Hydrogeology

Groundwater was encountered at a depth of approximately four and two-thirds (4.66) feet BGS. No additional hydrogeologic investigation was approved under the scope of work for this project. The groundwater flow direction was not determined.

3.0 Closure Site Assessment

NPE and TVC decommissioned and removed the UST's on May 13, 1996. Upon removal of the UST's, Sage performed a visual inspection of each tank. The inspection found corrosion and pitting at the bases of both tank surfaces. Holes up to one-half (1/2) inch in diameter were also observed at the base of both tanks. The uppermost portions of each UST appeared to be in fair to good condition.

Rodney Heit, an environmental assessor registered with the International Fire Code Institute (I.F.C.I.) #947832236, provided closure site assessment services on May 13, 1996. Field screening was accomplished using a Flame Ionization Detector (FID). Sampling and field screening methodologies are described in Appendix B. Field screening results are documented by the *Daily Field Sampling Log* (Appendix C). Analytical methods are documented in Appendix D.

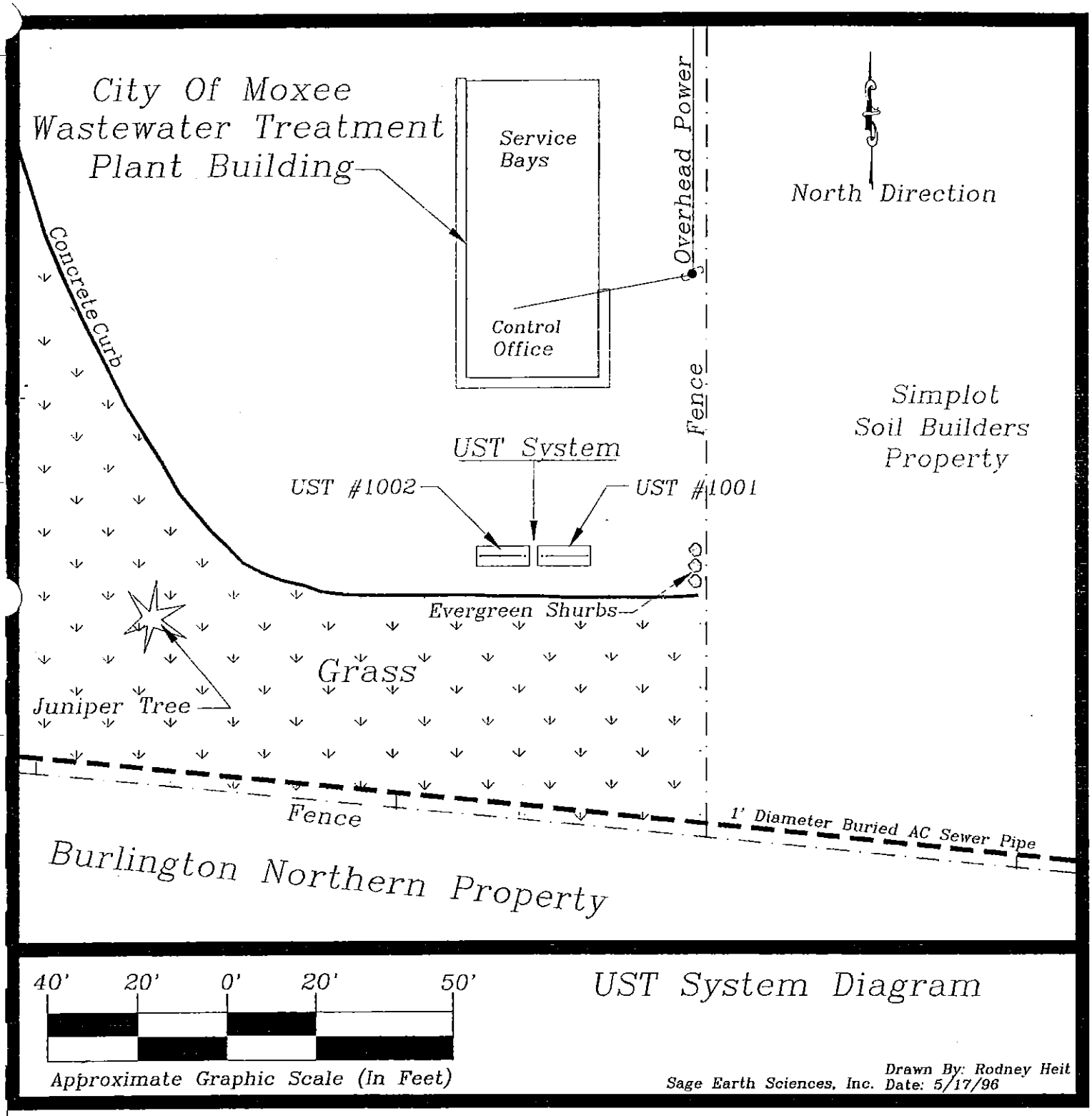


Figure 3. UST System Diagram

3.1 UST Excavation Assessment

Upon removal of the UST's, field observations indicated the presence of petroleum impacted soil on the north, west and south sidewalls of the UST excavation. Based upon visual and olfactory observations, TVC excavated a total of approximately fifty (50) cubic yards of apparently impacted sandy soil, which appeared to consist of material used to backfill during UST installation activities, from the UST excavation. The impacted soil was placed upon a plastic liner for temporary storage at the site.

Upon completion of limited impacted soil removal activities, Sage collected six (6) soil samples (MAX-0196-S1 through MAX-0196-S6) from the sidewalls of the excavation and one (1) sample of groundwater (MAX-0196-W7) exposed at the floor of the excavation for field and/or laboratory analysis. These sampling locations are shown by Figure 3.

Sage submitted selected soil and water samples to FBI for independent laboratory analysis. HCID (Hydrocarbon Identification) analysis of sample MAX-0196-S1, collected from the northern sidewall of the excavation indicated the presence of gasoline range petroleum hydrocarbons. Additional analysis of this soil sample found:

- gasoline range petroleum hydrocarbons at a concentration of 95 parts per million (ppm),
- no detectable (less than 0.2 ppm) benzene,
- toluene at a concentration of 3.1 ppm,
- ethylbenzene at a concentration of 0.9 ppm,
- xylenes at a concentration of 9.1 ppm and
- total lead at a concentration of 6 ppm.

HCID analysis of a composite sample (MAX-0196-S2 & S6) collected from the eastern and northern sidewall of the excavation, and a discrete soil sample (MAX-0196-S3) collected from the southern sidewall of the excavation, found no detectable petroleum hydrocarbons. Although soil samples MAX-0196-S4 & S5 were not submitted for FBI analysis, field screening indicated the presence of organic compounds at these sampling locations.

Comparison of the FBI analytical results (Appendix E) with the Method A Soil Cleanup Levels (Cleanup Levels) of WAC 173-340-740 (Appendix F) indicates that no additional soil remediation is required at these soil sampling locations.

FBI analysis of the groundwater sample (MAX-0196-W7) found:

- gasoline range petroleum hydrocarbons at a concentration of 270,000 parts per billion (ppb),
- benzene at a concentration of 620 ppb,
- toluene at a concentration of 15,000 ppb,
- ethylbenzene at a concentration of 3,800 ppb,

- xylenes at a concentration of 32,000 ppb and
- total lead at a concentration of 680 ppb.

Comparison of the FBI analytical results (Appendix E) with the Method A Groundwater Cleanup Levels (Cleanup Levels) of WAC 173-340-720 (Appendix F) indicates that groundwater remediation is required to reduce gasoline, benzene, toluene, ethylbenzene, xylene and total lead concentrations to acceptable levels.

3.2 Soil Stockpile Assessment

Sage collected three (3) samples (MAX-0196-SP8 through MAX-0196-SP10) from the stockpile of apparently impacted soil. These sampling locations are shown by Figure 3. FBI analysis of these soil samples found:

- gasoline at concentrations ranging from 60 ppm up to 720 ppm,
- benzene at concentrations up to 10 ppb,
- toluene at concentrations ranging from 2.9 ppb up to 200 ppb,
- ethylbenzene at concentrations ranging from 1.4 ppb up to 90 ppb,
- xylenes at concentrations ranging from 10.3 ppb up to 490 ppb and
- total lead at concentrations up to 6.0 ppm.

Comparison of the analytical results (Appendix E) with the WSDOE "End Use Criteria for Petroleum Contaminated Soils" (Appendix G) indicates that the impacted soil stockpile is designated as "Class 4 Soil". For "Class 4 Soils", the WSDOE recommends:

- treatment,
- disposal in a permitted, municipal landfill or
- permitted as a new PCS landfill.

Sage completed a copy of the *WSDOE UST Site Check/Site Assessment Checklist* and NPE completed a copy of the *WSDOE Underground Storage Tank Temporary/Permanent Closure and Site Assessment Notice*. These completed forms are attached as Appendix H and Appendix I respectively.

4.0 Recommendations

Sage recommends collection and analysis of an additional soil sample to determine if petroleum concentrations require soil remediation on the western sidewall of the excavation.

Based upon the analytical results, remedial action is necessary to contain the release and reduce petroleum hydrocarbon concentrations in the groundwater to acceptable levels. However, the extent of impacted groundwater has not been determined. The extent of impacted groundwater must be determined prior to designing an appropriate remediation method. The extent of contamination may be determined through collection and analysis of soil/groundwater samples from exploratory backhoe test pits, soil borings and/or groundwater monitoring wells.

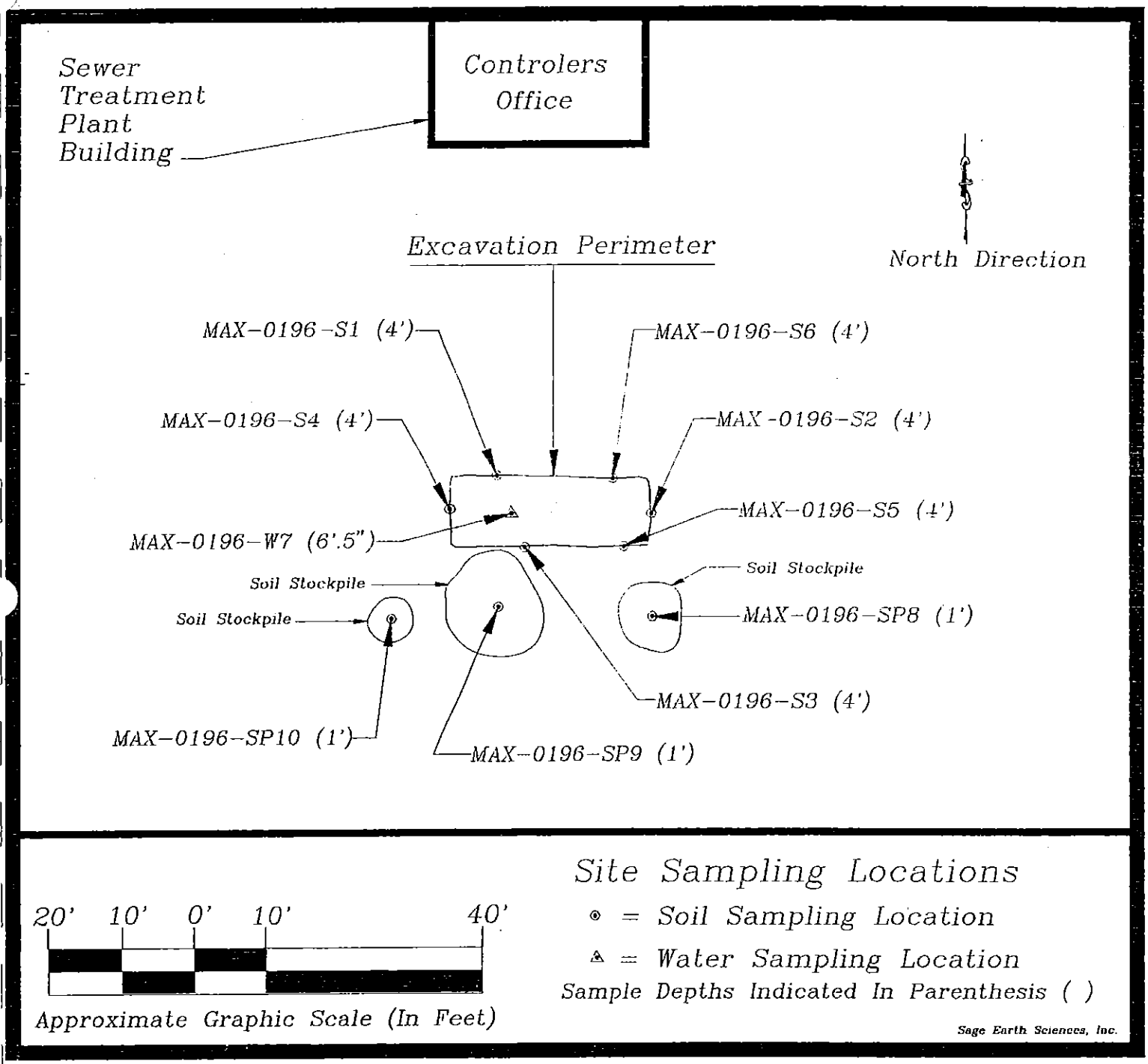


Figure 4. Closure Site Assessment Sampling Locations

Sage recommends installation of at least three (3) groundwater monitoring wells at the site, in accordance with WAC 173-340-450, to facilitate collection of groundwater samples and to determine hydrogeologic conditions. Samples should be collected from the wells and analyzed for petroleum hydrocarbons and total lead. Upon installation of groundwater monitoring wells, the horizontal and vertical position of each well must be determined by a surveyor. This will allow determination of the precise groundwater flow direction. This data will be used to ensure that at least one (1) of the wells is downgradient of the UST system.

Upon completing these activities, an appropriate remedial response may be chosen to contain the release and reduce petroleum hydrocarbon concentrations.

5.0 Limitations

In performance of this project, Sage Earth Sciences has conducted its activities in accordance with current regulatory guidelines. The conclusions and recommendations are based upon our field observations, field screening and independent laboratory analyses. Since the investigation is limited to the closure site assessment project, this document does not imply that the property is free of other environmental constraints.

Appendix A

SOIL EXCAVATION PROFILE

SAGE
Earth Sciences, Inc.
602 Cherryhill Lane
P.O. Box 1644
Zillah, WA 98953
Phone (509) 829-6400

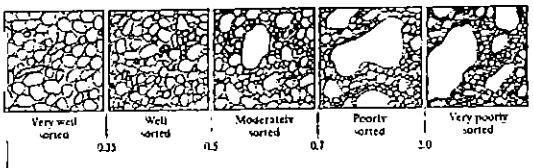
Field Crew RODNEY L HEIT

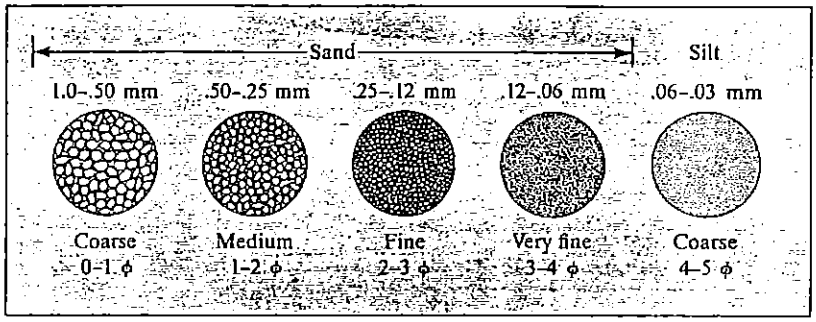
Project Name MOXEE SEWER TREATMENT PLANT Project # MAX-0196

Address 7520 POSTMA ROAD MOXEE, WA 98936 Date 5/13/96

Location N.E 1/4 N.E 1/4 Sec. 2 T. 12 N. R. 19 E., W.M. Elevation ~1025 Datum M.S.L

Pit Dimensions Approx 9' W x 25' L x 7' D Finish Depth 7' Pit Orientation East — West





Additional Detrital Rock Classifications on Reverse

Sample #	Matrix	Groundwater	Depth (ft)	Graphic Log	Unified Soil Classification	Description of Lithologies
					N/A	ASPHALTIC TOP COARSE PAVEMENT
					N/A	CRUSHED BASALTIC BOTTOM COARSE FILL MATERIAL
			1		ML	MEDIUM BROWN CLAYEY, SILT.
			2			
			3		OL	LIGHT GREEN TO BLUE SILTY, CLAY.
			4			
			5			
			6			
			7		N/A	FRACTURED PLATEY BASALT

Rodney L Heit 5-13-96

SAGE Representative Date

Appendix B

Soil Sampling Methodology

Soil sampling locations were chosen at locations considered representative of soil conditions. The soil sampling methodology utilized by Sage is described below.

1. Select a Protocol A (laboratory certified clean) sample jar whose volume is adequate for the appropriate analysis.

2. Collect the soil sample from a backhoe bucket by selecting soil that has not come into contact with the bucket.

3. Immediately transfer the soil to the sample container, using the container itself to collect the sample. Using disposable vinyl gloves, pack the soil tightly into the container to prevent the loss of volatile compounds. Ensure that the container is filled completely to exclude any airspace in the sample.

4. Label the jar with a unique identification number, the analytical procedure to be used, the time and date of sample collection and the person who collected the sample.

5. Enter the sample on the Chain-of-Custody form.

6. Place the sample in wet ice to cool the samples to approximately four (4) degrees Celsius.

7. Place the samples in a shipping cooler packed with absorbant material and blue ice for shipment.

8. Secure the Chain-of-Custody form to the underside of the cooler lid in a sealable plastic bag with tape.

9. Secure the lid of the cooler with strapping tape and affix custody seals across the lid/cooler interface. Place appropriate shipping waybills atop the cooler.

10. Ship the samples to the laboratory via commercial courier.

Groundwater Sampling Methodology

To collect groundwater samples, Sage used the methodology outlined below.

1. Using new disposable gloves and a disposable bailer attached to new monofilament line, collect a sample of groundwater from the excavation by lowering the bailer into the groundwater. Retrieve the sample from the excavation.

2. Transfer a sample of the groundwater into a new 40 ml. septa container with minimum agitation to the sample. Ensure that the container is filled completely by filling until an inverted meniscus is formed at the top of the septa container.

3. Replace the cap and invert to ensure there is no airspace in the sample.

4. Label the sample container with a unique identification number, the analytical procedure to be used, the time and date of sample collection and the name of the person collecting the sample.

5. Enter the sample on the Chain-of-Custody form and the Field Sampling Log.

6. Place the sample in wet ice to cool the sample to approximately four (4) degrees Celsius.

7. Place the samples in a shipping cooler packed with absorbent material and blue ice for shipment.

8. Secure the Chain-of-Custody form to the underside of the cooler lid in a sealable plastic bag with tape.

9. Upon completion of sampling activities, secure the lid of the cooler with strapping tape and affix custody seals across the lid/cooler interface. Place appropriate shipping waybills atop the cooler.

10. Ship the samples to the laboratory via commercial courier.

Field Screening with the Flame Ionization Detector

For semi-quantitative analysis of organic vapors, such as those found in gasoline, Sage uses a Heath Porta-FID Organic Vapor Detector. The headspace method is used to detect organic vapors emitted by soils contaminated by volatile petroleum products. The field screening methodology, using the headspace method, is described as follows:

1. Place a discrete soil sample into a clean one quart mason jar, filling the jar approximately 1/3 full.

2. Immediately place aluminum foil over the top of the jar and secure it with a ring to prevent loss of volatile compounds.

3. Place the sample in boiling water for ten (10) minutes. This causes the volatile compounds to be released from soil particles and collect in the space above the soil.

4. Remove the sample from the boiling water and insert the instrument probe through the aluminum foil.

5. Record the instrument response on the Daily Field Sampling Log.

Appendix C

Daily Field Sampling Log

Project # MAX-0196
Date 5-13-96
Sampler Rodney Hart
Sheet 1 of ____

Sample #	Location	Matrix	Staining	Odors	Depth	TOV	TLC
MAX-0196-S1	North Sidewall	Soil	Green	Gas	4'	>5000	N/A
MAX-0196-S2	East endwall	Soil	Green	Slight gas	4'	24	
MAX-0196-S3	South Sidewall Cent.	Soil	Green	Gas	4'	7500	
MAX-0196-S4	West endwall	Soil	Green	organics	4'	680	
MAX-0196-S5	S.E Side wall	Soil	Green	Gas organics Strong	4'	1000	
MAX-0196-S6	N.E Side wall	Soil	Green	organic	4'	10	
MAX-0196-W7	Floor EXC.	H_2O	Brown	Gas	6.5	N/A	
MAX-0196-SP8	STOCKPILE Small East 50 C yds^3	Soil	Green Brown	Gas	1'	N/A	
MAX-0196-SP9	" Large Central "	Soil	Green Brown	Gas	1'	N/A	
MAX-0196-SP10	" Small West "	Soil	Green Brown	Gas	1'	N/A	

Ambient Vapors 3 Units
TLC Standards N/A

S = Soil Sample
GW = Groundwater Sample
SW = Surface Water Sample
D = Duplicate Sample (10 % of samples/matrix)
TB = Travel Blank
W = Water grab Sample collected

Appendix D

Analytical Methods

For confirmatory laboratory analysis, Sage submitted representative soil samples to:

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282

The analytical methods chosen for selected soil samples consist of:

- HCID (Hydrocarbon Identification),
- WTPH-G (Gasoline),
- EPA Method 8020/602 (Benzene, Toluene, Ethylbenzene & Xylenes) in soil and
- EPA Method 3050-3005A/6010 (Total Lead).

Appendix E

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

May 21, 1996

Rodney Heit, Project Manager
Sage Earth Sciences, Inc.
601 Glenwood Drive
Zillah, WA 98953

Dear Mr. Heit:

Enclosed are the results from the testing of material submitted on May 14, 1996 from your Moxee Sewer Treatment Plant , MAX-0196 project.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Bradley T. Benson
Chemist

keh
Enclosures
SES0521R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: May 21, 1996
Date Received: May 14, 1996
Project: Moxee Sewer Treatment Plant, MAX-0196
Date Samples Extracted: May 20, 1996

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLE FOR GASOLINE, DIESEL AND HEAVY OIL BY WTPH-HCID

Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery)
Composite: MAX-0196-S2 & MAX-0196-S6	ND	ND	ND	108
Method Blank	ND	ND	ND	100

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 100 mg/kg heavy oil.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: May 21, 1996
Date Received: May 14, 1996
Project: Moxee Sewer Treatment Plant, MAX-0196
Date Samples Extracted: May 15, 1996
Date Analyzed: May 15, 1996

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLE FOR GASOLINE, DIESEL AND HEAVY OIL BY WTPH-HCID

Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery)
MAX-0196-S1	D	ND	ND	97
MAX-0196-S3	ND	ND	ND	86
Method Blank	ND	ND	ND	100

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 100 mg/kg heavy oil.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: May 21, 1996
Date Received: May 14, 1996
Project: Moxee Sewer Treatment Plant, MAX-0196
Date Samples Extracted: May 16, 1996

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND GASOLINE USING EPA METHODS 8020 AND 8015

Results Reported as µg/g (ppm)

Sample #	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline	Surrogate % Recovery
MAX-0196-S1	<0.2	3.1	0.9	9.1	95	98
MAX-0196-SP8	<0.02	0.29	0.14	1.3	60	90
MAX-0196-SP9	1	20	9	49	720	96
MAX-0196-SP10	<0.2	1.1	1.7	17	500	93
Method Blank	<0.02	<0.02	<0.02	<0.02	<1	92

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: May 21, 1996
Date Received: May 14, 1996
Project: Moxee Sewer Treatment Plant, MAX-0196

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND GASOLINE USING EPA METHODS 8020 AND 8015

Laboratory Code: 68959 (Duplicate)

Analyte:	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Benzene	ug/g (ppm)	<0.02	<0.02	nm	0-20
Toluene	ug/g (ppm)	<0.02	<0.02	nm	0-20
Ethylbenzene	ug/g (ppm)	<0.02	<0.02	nm	0-20
Xylenes	ug/g (ppm)	<0.02	<0.02	nm	0-20
Gasoline	ug/g (ppm)	2	3	40 a	0-20

Laboratory Code: 68959 (Matrix Spike)

Analyte:	Reporting Units	Spike Level	Sample Result	% Recovery MS	% Recovery MSD	Acceptance Criteria	Relative Percent Difference
Gasoline	ug/g (ppm)	10	2	106	109	62-109	3

Laboratory Code: Spike Blank

Analyte:	Reporting Units	Spike Level	% Recovery MS	% Recovery MSD	Acceptance Criteria	Relative Percent Difference
Benzene	ug/g (ppm)	1	95	93	67-110	2
Toluene	ug/g (ppm)	1	96	94	66-110	2
Ethylbenzene	ug/g (ppm)	1	96	95	67-110	1
Xylenes	ug/g (ppm)	3	96	95	64-113	1
Gasoline	ug/g (ppm)	10	94	101	60-124	7

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

a - The analyte was detected at a level less than five times the detection limit. The RPD results may not provide reliable information on the variability of the analysis.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: May 21, 1996
Date Received: May 14, 1996
Project: Moxee Sewer Treatment Plant, MAX-0196
Date Samples Extracted: May 15, 1996

RESULTS FROM THE ANALYSIS OF THE WATER SAMPLE FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND GASOLINE USING EPA METHODS 8020 AND 8015
Samples Processed Using Method 5030
Results Reported as µg/L (ppb)

Sample #	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline	Surrogate % Recovery
MAX-0196-W7	620	15,000	3,800	32,000	270,000	98
Method Blank	<1	<1	<1	<1	<50	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: May 21, 1996
Date Received: May 14, 1996
Project: Moxee Sewer Treatment Plant, MAX-0196

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND GASOLINE USING EPA METHODS 8020 AND 8015

Laboratory Code: 68837 (Duplicate)

Analyte:	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Benzene	ug/L (ppb)	35	39	11	0-20
Toluene	ug/L (ppb)	43	51	17	0-20
Ethylbenzene	ug/L (ppb)	1	1	0	0-20
Xylenes	ug/L (ppb)	200	210	5	0-20
Gasoline	ug/L (ppb)	3,200	3,300	3	0-20

Laboratory Code: Spike Blank

Analyte:	Reporting Units	Spike Level	% Recovery MS	% Recovery MSD	Acceptance Criteria	Relative Percent Difference
Benzene	ug/L (ppb)	100	99	101	79-113	2
Toluene	ug/L (ppb)	100	103	104	77-117	1
Ethylbenzene	ug/L (ppb)	100	103	104	77-121	1
Xylenes	ug/L (ppb)	300	105	105	79-123	0
Gasoline	ug/L (ppb)	1,000	108	114	80-129	5

FRIEDMAN & BRUYA, INC.
ENVIRONMENTAL CHEMISTS

Date of Report: May 21, 1996
Date Received: May 14, 1996
Project: Moxee Sewer Treatment Plant, MAX-0196
Date Samples Extracted: May 17, 1996
Date Extracts Analyzed: May 17, 1996

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR LEAD USING METHOD 6010

Samples Processed Using Method 3050
Results Reported as µg/g (ppm)

Sample ID	Lead
MAX-0196-S1	6
MAX-0196-SP8	4
MAX-0196-SP9	6
MAX-0196-SP10	5
Method Blank	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: May 21, 1996
Date Received: May 14, 1996
Project: Moxee Sewer Treatment Plant, MAX-0196

QUALITY ASSURANCE RESULTS FOR LEAD BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Laboratory Code: 68958 (Duplicate)

Analyte:	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Lead	ug/g (ppm)	5	3	50a	0-20

Laboratory Code: 68958 (Matrix Spike)

Analyte:	Reporting Units	Spike Level	Sample Result	% Recovery MS	% Recovery MSD	Acceptance Criteria	Relative Percent Difference
Lead	ug/g (ppm)	100	5	100	96	50-150	4

Laboratory Code: Spike Blank

Analyte:	Reporting Units	Spike Level	% Recovery MS	% Recovery MSD	Acceptance Criteria	Relative Percent Difference
Lead	ug/g (ppm)	100	108	111	80-120	3

a - The analyte was detected at a level less than five times the detection limit. The RPD results may not provide reliable information on the variability of the analysis.

FRIEDMAN & BRUYA, INC.
ENVIRONMENTAL CHEMISTS

Date of Report: May 21, 1996
Date Received: May 14, 1996
Project: Moxee Sewer Treatment Plant, MAX-0196
Date Samples Extracted: May 17, 1996
Date Extracts Analyzed: May 17, 1996

RESULTS FROM THE ANALYSIS OF THE WATER SAMPLE FOR LEAD USING METHOD 6010

Samples Processed Using Method 3005A

Results Reported as mg/L (ppm)

Sample ID	Lead
MAX-0196-W7	0.68
Method Blank	<0.08

FRIEDMAN & BRUYA, INC
ENVIRONMENTAL CHEMISTS

Date of Report: May 21, 1996
Date Received: May 14, 1996
Project: Moxee Sewer Treatment Plant, MAX-0196

QUALITY ASSURANCE RESULTS FOR LEAD BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Laboratory Code: 68955 (Duplicate)

Analyte:	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Lead	mg/L (ppm)	0.68	0.77	12	0-20

Laboratory Code: 68955 (Matrix Spike)

Analyte:	Reporting Units	Spike Level	Sample Result	% Recovery MS	% Recovery MSD	Acceptance Criteria	Relative Percent Difference
Lead	mg/L (ppm)	100	0.68	83	85	50-150	2

Laboratory Code: Spike Blank

Analyte:	Reporting Units	Spike Level	% Recovery MS	% Recovery MSD	Acceptance Criteria	Relative Percent Difference
Lead	mg/L (ppm)	100	113	106	80-120	6

Soge Earth Sciences, Inc
501 Glenwood Drive
Zillah, WA 98953
Phone (509) 829-6100
Fax (509) 829-6143

CHAIN OF CUSTODY RECORD

Project Name Moxee Sewer Treatment Plant
Project Number MAX-0196
Sampler Rodney Hart
Date 5-13-96 Time 6:15 pm
Destination FREEDMAN & BRUYA, INC

Sample Number	Matrix	Number of Containers	Container size	Analyses Requested: WTPH-G	BTEX	TOTAL LEAD	PLEASE ARCHIVE	HOLD								
MAX-0196-S1	Soil	1	4oz	X	X		68944		Please Composite				S1	S4		
MAX-0196-S2	Soil	1	4oz	X	X		68948		Please Composite				S2	S3		
MAX-0196-S3	Soil	1	4oz	X	X		68949									
MAX-0196-S4	Soil	1	4oz	X	X		68950									
MAX-0196-S5	Soil	1	4oz	X	X		68951									
MAX-0196-S6	Soil	1	4oz	X	X	X	68952									
MAX-0196-W7	H_2O	3	1 Liter 40ml	X	X	X	68953-54 (VOA) 68955 (Liter)									
MAX-0196-SP8	Soil	1	4oz	X	X	X	68956									
MAX-0196-SP9	Soil	1	4oz	X	X	X	68957									
MAX-0196-SP10	Soil	1	4oz	X	X	X	68958									
S1, W7, SP8, SP9, SP10				X	X	X			Re Rodney Hart 8/7/96							
S2 and S6 comp								X								
S4 and S5							X									
S1, S3								X								

Relinquished by: Rodney Hart Date: 5/13/96
Firm: Soge Earth Sciences Inc. Time: 6:15 pm

Received By: Cathy Downing Date: 5-14-96
Firm: FaBI Time: 2:10

Relinquished by: Date:
Firm: Time:

Received By: Date:
Firm: Time:

Container Condition Good Violated Cool (1°C) Yes No Custody Seals Intact Violated

Appendix F

Method A Cleanup Levels - Ground Water [a]

Hazardous Substance	CAS Number	Cleanup Level
Arsenic	7440-38-2	5.0 ug/liter [b]
Benzene	71-43-2	5.0 ug/liter [c]
Cadmium	7440-43-9	5.0 ug/liter [d]
Chromium (Total)	7440-47-3	50.0 ug/liter [e]
DDT	50-29-3	0.1 ug/liter [f]
1,2 Dichloroethane	107-06-2	5.0 ug/liter [g]
Ethylbenzene	100-41-4	30.0 ug/liter [h]
Ethylene dibromide	106-93-4	0.01 ug/liter [i]
Gross Alpha Particle Activity		15.0 pCi/liter [j]
Gross Beta Particle Activity		4.0 mrem/yr [k]
Lead	7439-92-1	5.0 ug/liter [l]
Lindane	58-89-9	0.2 ug/liter [m]
Methylene chloride	75-09-2	5.0 ug/liter [n]
Mercury	7439-97-6	2.0 ug/liter [o]
PAHs (carcinogenic)		0.1 ug/liter [p]
PCB mixtures		0.1 ug/liter [q]
Radium 226 and 228		5.0 pCi/liter [r]
Radium 226		3.0 pCi/liter [s]
Tetrachloroethylene	127-18-4	5.0 ug/liter [t]
Toluene	108-88-3	40.0 ug/liter [u]
Total Petroleum Hydrocarbons		1000.0 ug/liter [v]
1,1,1 Trichloroethane	71-55-6	200.0 ug/liter [w]
Trichloroethylene	79-01-5	5.0 ug/liter [x]
Vinyl chloride	75-01-4	0.2 ug/liter [y]
Xylenes	1330-20-7	20.0 ug/liter [z]

Method A Cleanup Levels - Soil [a]

Hazardous Substance	CAS Number	Cleanup Level
Arsenic	7440-38-2	20.0 mg/kg [b]
Benzene	71-43-2	0.5 mg/kg [c]
Cadmium	7440-43-9	2.0 mg/kg [d]
Chromium	7440-47-3	100.0 mg/kg [e]
DDT	50-29-3	1.0 mg/kg [f]
Ethylbenzene	100-41-4	20.0 mg/kg [g]
Ethylene dibromide	106-93-4	0.001 mg/kg [h]
Lead	7439-92-1	250.0 mg/kg [i]
Lindane	58-89-9	1.0 mg/kg [j]
Methylene chloride	75-09-2	0.5 mg/kg [k]
Mercury (inorganic)	7439-97-6	1.0 mg/kg [l]
PAHs (carcinogenic)		1.0 mg/kg [m]
PCB Mixtures		1.0 mg/kg [n]
Tetrachloroethylene	127-18-4	0.5 mg/kg [o]
Toluene	108-88-3	40.0 mg/kg [p]
TPH (gasoline)		100.0 mg/kg [q]
TPH (diesel)		200.0 mg/kg [r]
TPH (other)		200.0 mg/kg [s]
1,1,1 Trichloroethane	71-55-6	20.0 mg/kg [t]
Trichloroethylene	79-01-5	0.5 mg/kg [u]
Xylenes	1330-20-7	20.0 mg/kg [v]

Appendix G

TABLE V. END USE CRITERIA FOR PETROLEUM-CONTAMINATED SOILS

Analyte	Analytical Method	Soil Class (ppm) 1	2	3	4
Heavy fuel hydrocarbons (C24-C30)	WTPH-418.1 mod.	<60	60-200	200-2000	>2000
Diesel (C12-C24)	WTPH-D	<25	25-200	200-500	>500
Gasoline (C6-C12)	WTPH-G	<5	5-100	100-250	>250
Benzene	8020	<0.005	0.005-0.5	≤0.5	>0.5
Ethylbenzene	8020	<0.005	0.005-20	≤20	>20
Toluene	8020	<0.005	0.005-40	≤40	>40
Xylenes (total)	8020	<0.005	0.005-20	≤20	>20

Treatment is recommended for all Class 3 and 4 soils.

NOTES:

Class 1 Soil Uses:
Any use which will not cause threat to human health or the environment.

Class 2 Soil Uses:
Backfill at the cleanup site
Fill in commercial or industrial areas
Cover or fill in permitted landfills
Road subgrade or other road construction fill
Fill in or near: wetlands, surface water, ground water, drinking water wells or utility trenches is NOT recommended. Use as residential topsoil is also NOT recommended.

Class 3 Soil Uses:
Treatment
Disposal at the original site (no solid waste diposal permit needed)
Road construction (no solid waste diposal permit needed)
Use or disposal in permitted, municipal landfills
Permitted as a new PCS landfill
(An evaluation should be made to ensure that disposal will not cause a threat to human health or the environment, e.g. use near water bodies)

Class 4 Soil Uses:
Treatment
Disposal in a permitted, municipal landfill
Permitted as a new PCS landfill

UNDERGROUND STORAGE TANK
Site Check/Site Assessment Checklist

C For Office Use Only LS
Owner # U1240
Site # 2418

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): #002418

Site/Business Name: CITY OF MOXEE, SHOP & WASTE WATER TREATMENT PLANT

Site Address: 7520 POSTMA ROAD & HIGHWAY 24 (Street) Telephone: (509) 575-8853

P.O. BOX 249 (City) Moxee (State) WA. (ZIP-Code) 98936

TANK INFORMATION

Tank ID No.	Tank Capacity	Substance Stored
1001	1,000 Gallon	Unleaded Gasoline
1002	1,000 Gallon	Regular Leaded Gasoline

REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- ____ 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): ____

Appendix I

UNDERGROUND STORAGE TANK TEMPORARY/PERMANENT CLOSURE and SITE ASSESSMENT NOTICE

WASHINGTON STATE DEPARTMENT OF ECOLOGY

See back of form for instructions
Please ☑ the appropriate box(es)
Please type or print information

For Office Use Only
Owner #
Site #

☐ Temporary Tank Closure ☒ Permanent Tank Closure ☐ Change-In-Service ☐ Site Assessment/ Site Check

SITE INFORMATION:

Site ID Number (on invoice or available from Ecology if the tanks are registered): # 002418

Site/Business Name: Moxee City Shop and Wastewater Treatment Plant

Site Address: Postma Road & Highway 24 (7520) (Street) Telephone: (509) 575-8853

Mailing: P.O. Box 249 (City) Moxee, (State) WA. (ZIP-Code) 98936

TANK INFORMATION:

Tank ID	Closure Date	Tank Capacity	Substance Stored
1001	5/13/96	1,000 Gallon	Unleaded Gas
1002	5/13/96	1,000 Gallon	Regular Lead Gas

CONTAMINATION PRESENT AT THE TIME OF CLOSURE

☒ Yes ☐ No

☒ Unknown

Check unknown if no obvious contamination was observed and sample results have not yet been received from analytical lab.

UST SYSTEM OWNER/OPERATOR:

UST Owner/Operator: City of Moxee

Owners Signature: Bryan Peterson Telephone: (509) 575-8851

Address: 255 W. Seattle Ave (Street) P.O. Box 249 (P.O. Box)

Moxee (City) Wash. (State) 98936 (ZIP-Code)

TANK CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Service Provider: NORTHWEST PETROLEUM EQUIPMENT License Number: S000323

Licensed Supervisor: JAMES INGBERG Decommissioning License Number: IFCI #82846

Supervisors Signature: James Ingberg

Address: 265 JOHNSON RD. (Street) (P.O. Box)

SELAH (City) WA. (State) 98942 (ZIP-Code)

Telephone: (509) 697-9002

SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Name of Registered Site Assessor: Rodney L Heit

Telephone: (509) 829-6400

Address: 601 Glenwood Drive (Street) 1644 (P.O. Box)

Zillah (City) WA. (State) 98953 (ZIP-Code)

ECY 020-34