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

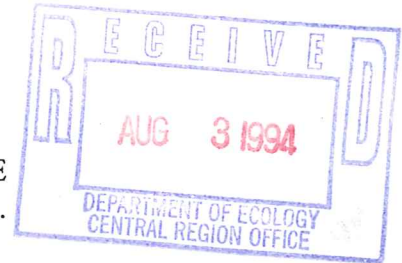
July 28, 1994

Pet Health Clinic

90 Cheyne Road
Zillah, WA 98953

Attention: Mike Collins

SUBJECT: CLOSURE SITE ASSESSMENT AND LIMITED SITE
CHARACTERIZATION REPORT, SUNNYSIDE, WA.



Dear Mr. Collins,

Enclosed, please find one original and two copies of the Closure Site Assessment Report for the Pet Health Clinic tank removal and site characterization project, in Sunnyside, WA. Based on the data and findings reported herein, Sage finds that site soils have been impacted by a release of petroleum from at least one of the underground storage tank systems. Impacted soil does not appear to extend off-site. Although groundwater sampling was not included in the scope of work for this project, it is likely that the groundwater has also been impacted by petroleum hydrocarbons.

The Washington State Department of Ecology (WSDOE) requires that you retain this report for a minimum of ten (10) years. Sage recommends that you retain it indefinitely.

Sage Earth Sciences, Inc. appreciates the opportunity to provide you with environmental services for your project. If you have any questions, or comments regarding the content of this document, please call us at (509) 829-6400.

Respectfully,
SAGE EARTH SCIENCES, INC.

A handwritten signature in black ink, appearing to read "David L. Green".

David L. Green
Principal Geologist

cc: file
Washington State Department of Ecology Headquarters, Olympia, WA
WSDOE Toxics Cleanup Program, Central Regional Office, Yakima, WA

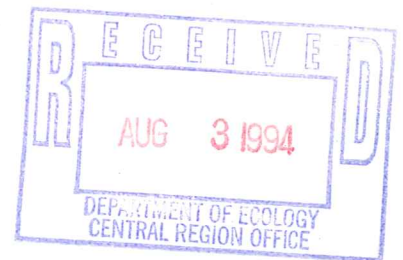
Project Number: PHC-0194

UST Closure Site Assessment and Limited Site Characterization Report

For Soil Sampling Activities at the
Pet Health Clinic Facility,
Sunnyside, WA

Prepared For:

Dr. Mike Collins
90 Cheyne Road
Zillah, WA 98953



Prepared By:



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

July, 1994

Executive Summary

Pet Health Clinic removed an abandoned Underground Storage Tank (UST) in approximately 1992 at a veterinary clinic facility located at 2210-A, Sunnyside, WA. The size, contents and history of this tank were not recorded but the tank volume was likely about 500 gallons. A second UST remained near the original position of the removed UST. The UST's were positioned near the northwest corner of the clinic building. Pet Health Clinic retained Sage Earth Sciences, Inc. (Sage) to perform limited soil sampling services at the position of the removed tank and upon removal of the remaining UST. HMB Construction, Inc. (HMB) provided decommissioning services for removal of the remaining tank.

On May 11, 1994, Sage collected a soil sample from the location of the previously removed UST using a stainless steel soil auger. The sample was impacted by diesel range petroleum hydrocarbons. Pet Health Clinic expanded Sage's scope of work to include a limited investigation to determine the approximate extent of impacted soil. On May 16, 1994, Sage established an additional twelve (12) soil borings west and south of the existing clinic building and the kennel structure.

The soil samples were submitted to Materials Testing and Consulting, Inc., Burlington, WA for independent laboratory analysis. To determine if soil remediation is required, Sage compared the analytical results to the "Method A Soil Cleanup Levels" (Cleanup Levels) of WAC 173-340-740. Based upon the analytical results, the impacted soil appears to extend beneath an asphalted driveway into a grass lawn area. The impacted soil also appears to extend beneath the clinic building beyond the southwest corner of the clinic building. However, the impacted soil does not appear to extend beyond the property boundaries.

HMB removed the 500 gallon UST on July 1, 1994. Sage submitted a soil sample, collected from the tank excavation floor, to MTC for laboratory analysis. The analysis found aged gasoline, diesel and xylenes at concentrations exceeding the Cleanup Levels.

Sage recommends installing a minimum of three (3) groundwater monitoring wells to check for the presence of groundwater contamination and to determine groundwater flow direction at the site. Upon determining the hydrogeologic characteristics at the site, an appropriate remedial action may be determined and implemented.

TABLE OF CONTENTS

1.0 Introduction	Page 1
1.1 Purpose	Page 1
1.2 Scope of Work	Page 1
2.0 Background Information	Page 1
2.1 Site History	Page 1
2.2 Site Location	Page 1
2.3 Site Description	Page 1
2.4 UST System Information	Page 4
2.5 Soils Description	Page 4
3.0 Site Characterization	Page 4
3.1 Soil Borings	Page 4
3.1.1 Soil Boring #1	Page 6
3.1.2 Soil Boring #2	Page 6
3.1.3 Soil Boring #3	Page 6
3.1.4 Soil Boring #4	Page 6
3.1.5 Soil Boring #5	Page 7
3.1.6 Soil Boring #6	Page 7
3.1.7 Soil Boring #7	Page 7
3.1.8 Soil Boring #8	Page 7
3.1.9 Soil Boring #9	Page 7
3.1.10 Soil Boring #10	Page 8
3.1.11 Soil Boring #11	Page 8
3.1.12 Soil Boring #12	Page 8
3.1.13 Soil Boring #13	Page 8
3.2 UST Removal	Page 8
3.3 Soil Chemistry	Page 9
3.4 Groundwater Chemistry	Page 9
4.0 Project Summary	Page 11
5.0 Recommendations	Page 11
6.0 Limitations	Page 12

LIST OF APPENDICES

- Appendix A: Soil Excavation Profile
- Appendix B: Soil Boring Sampling Methods
- Appendix C: Daily Field Sampling Log
- Appendix D: Analytical Methods And Quality Control
- Appendix E: Analytical Data Reports
- Appendix F: Method A Soil Cleanup Levels of WAC 173-340-740
- Appendix G: Tank Excavation Soil Sampling Methods
- Appendix H: WSDOE UST Site Check/Site Assessment Checklist
- Appendix I: WSDOE Temporary/Permanent Closure and Site Assessment Notice

1.0 Introduction

1.1 Purpose

The purpose of this closure site assessment report is to describe findings and actions taken associated with one previously removed Underground Storage Tank (UST) and one (1) 550 gallon gasoline UST at the Pet Health Clinic Facility, Sunnyside, Washington. The closure site assessment investigation complies with regulatory requirements established by the Washington State Department of Ecology (WSDOE).

1.2 Scope of Work

Pet Health Clinic retained Sage Earth Sciences, Inc. (Sage) to provide limited soil sampling in the area of a previously removed UST. Upon discovering Petroleum Contaminated Soil (PCS) at this area, Sage's scope of work was expanded to include a limited site characterization and closure site assessment upon removal of the 500 gallon UST. HMB Construction Inc. (HMB), Kennewick, WA provided the tank decommissioning and removal services. The soil samples were submitted to Materials Testing and Consulting, Inc. (MTC), Burlington, WA. for independent laboratory analysis.

2.0 Background Information

2.1 Site History

The facility is occupied by veterinary clinic and kennel. Two UST's were installed at an unknown date to provide fuel for company vehicles and to provide heating oil for the clinic. Pet Health Clinic removed the eastern UST in approximately 1992. Mr. Mike Collins informed Sage that petroleum odors were observed within the tank excavation at this time. The tanks were not registered with the WSDOE. HMB decommissioned and removed the western tank on July 1, 1994.

2.2 Site Location

The facility is located at 2210-A East Edison, Sunnyside, WA. It is situated within the SE 1/4, of the NW 1/4, Section 30, Township 10 North, Range 23 East, Willamette Meridian. The site latitude is 46° 19' 30" and the longitude is 119° 59' 35". The location of the site is shown by Figure 1.

2.3 Site Description

The facility is occupied by a veterinary clinic as shown by Figure 2. Kennels are located immediately north of the clinic. The kennel is constructed of cyclone fenced pens upon a concrete pad. A residence is located approximately 100 feet north of the kennels. A drinking water well is located between the kennels and the residence. This well serves both the residence and the clinic.

Pet Health Clinic Facility, Sunnyside, WA

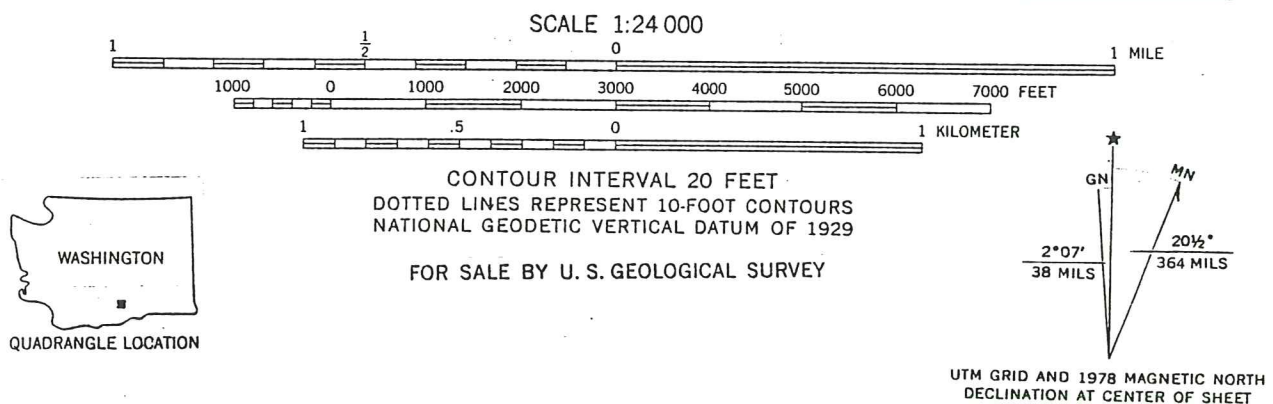
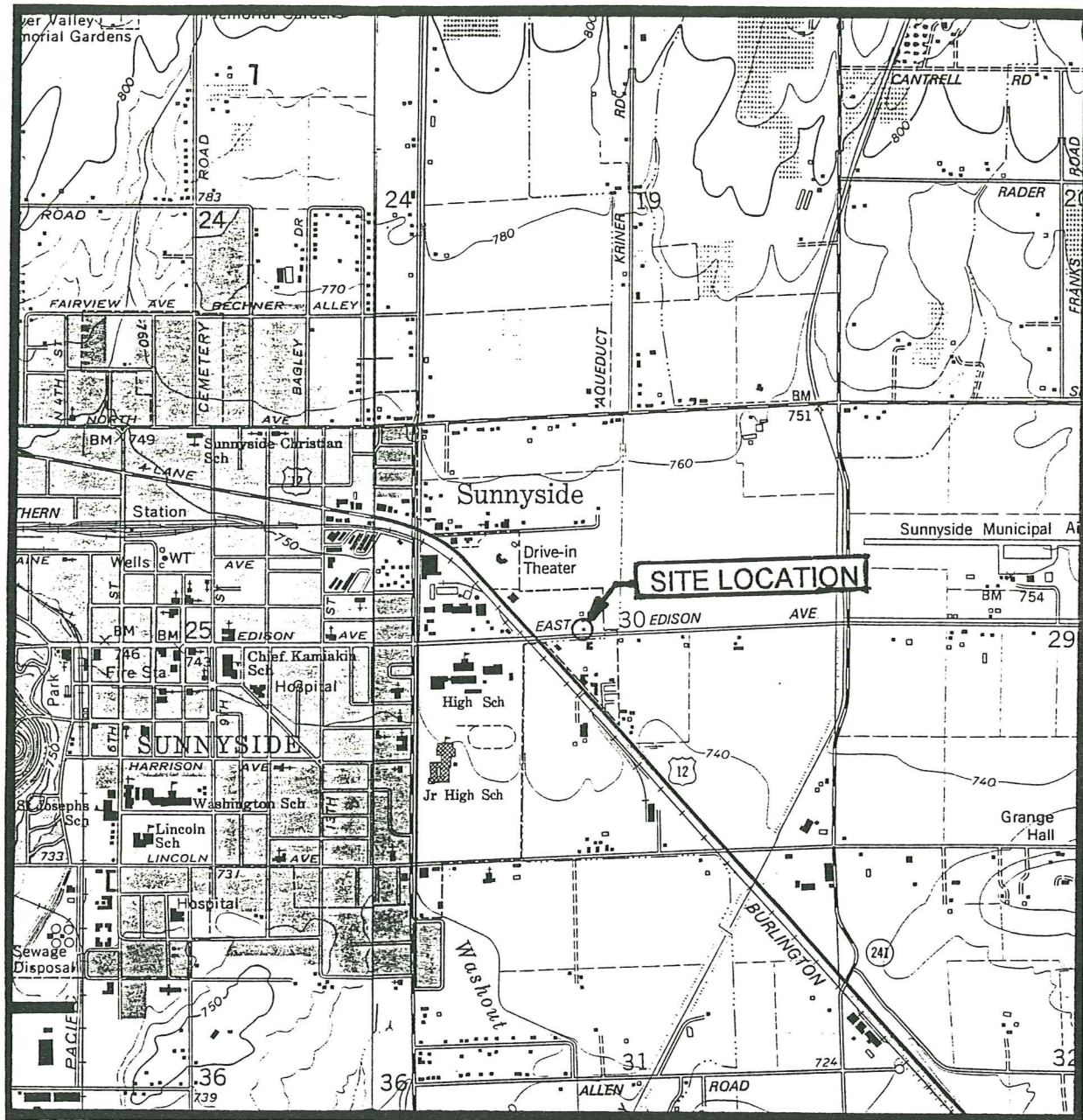


Figure 1. Site Location Map

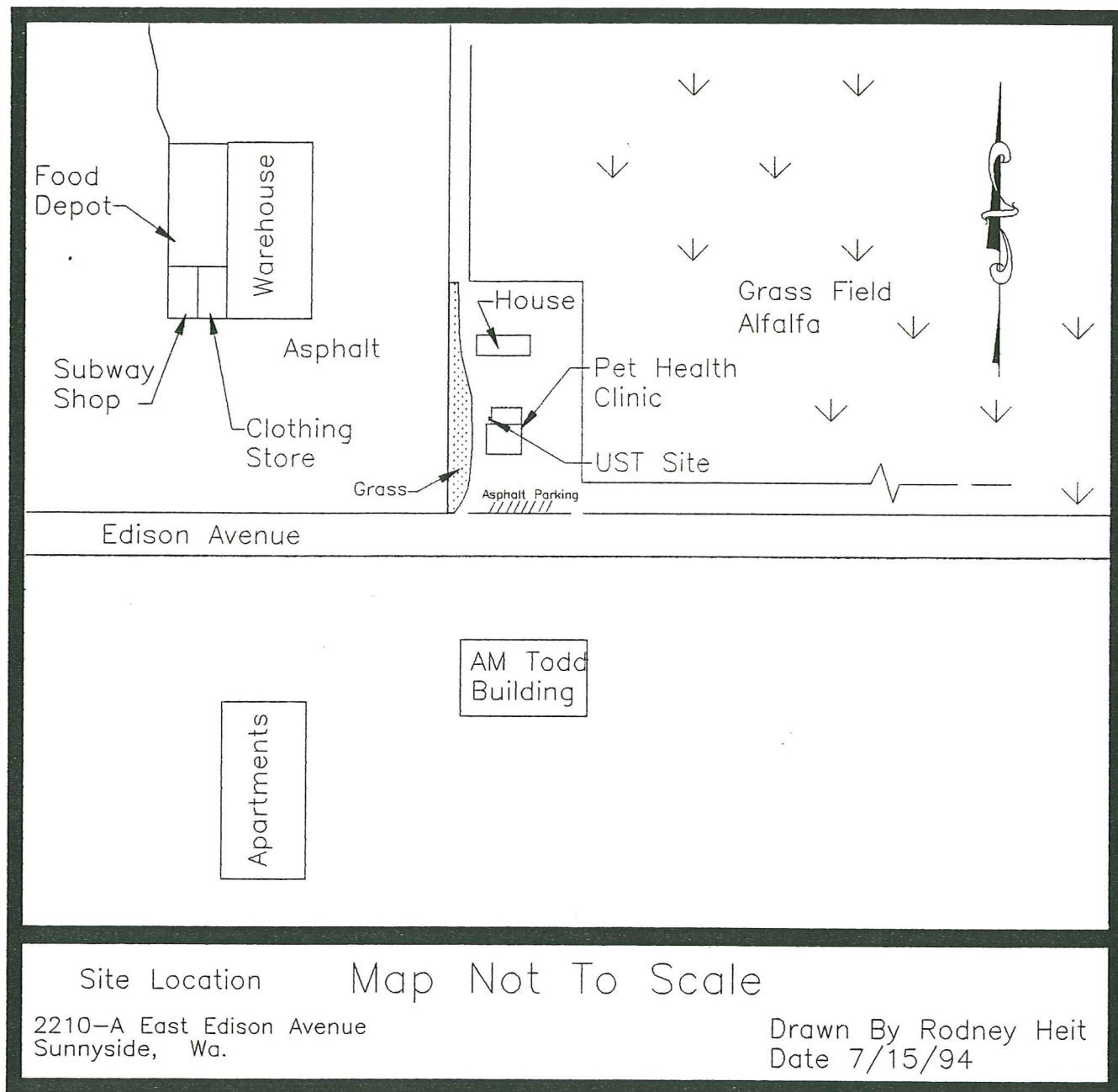


Figure 2. Site Vicinity Map

An asphalt driveway lies adjacent to the west side of the clinic building. A lawn lies west of the driveway and extends to the western property boundary. A row of small pine trees is located just inside the western property boundary. A major portion of these trees appear to be distressed. The property west of the facility consists of parking for the Sunnyside Mall which is located approximately 100 feet west of the site. The property east of the facility is a pasture. East Edison Avenue is located immediately south of the subject property. Commercial businesses are located south of Edison Avenue. The facility layout and adjacent land use is shown by Figure 2.

2.4 UST System Information

The size and contents of the previously removed UST are unknown. From the description provided by Dr. Collins, the tank volume was likely 500 gallons. The UST removed during this project consisted of a 500 gallon gasoline tank which appeared to contain gasoline. The date of tank installations are unknown and the tanks have not been used for at least two (2) years. The previously removed UST was located immediately west of the kennel. The 500 gallon UST was located approximately five (5) feet southwest of the previously removed UST. The UST system locations are shown by Figure 3.

2.5 Soils Description

Visual inspection of soils within the tank excavation and soil borings found:

- ♦ Light brown, clayey, sandy, silt extending to a depth of over seven (7) feet Below Ground Surface (BGS). Soil description are documented on the Soil Excavation Profile (Appendix A).

3.0 Site Characterization

3.1 Soil Borings

Rodney Heit, an environmental assessor registered with the WSDOE Underground Storage Tank Section, provided limited soil sampling services on May 11, 1994. Upon determining the petroleum impacted soil existed at this location, Pet Health Clinic expanded Sage's scope of work to include limited characterization of the extent of petroleum impacted soil. On May 16, 1994 Sage collected twelve (12) soil samples (PHC-0194-S3 through PHC-0194-S14). Soil sampling methods are described in Appendix B and sample descriptions are provided by Appendix C. Sage also collected a sample of drinking water from within the veterinary clinic building. However, the drinking water sample was broken during shipment. The soil sampling locations are shown by Figure 3. The soil samples were submitted to MTC for independent laboratory analysis using analytical methods described in Appendix D. The analytical data reports are attached as Appendix E. A discussion of each soil boring is presented below.

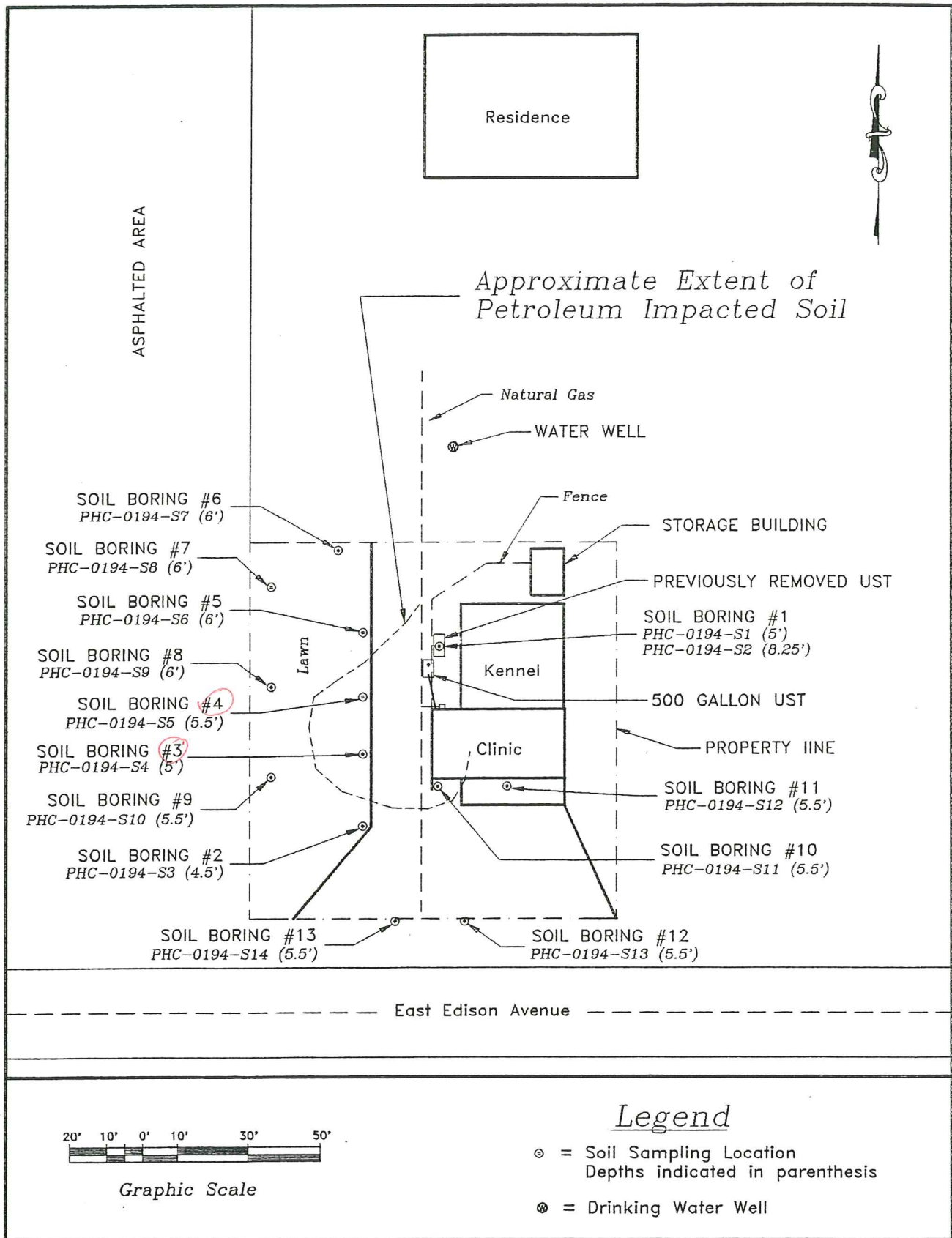


Figure 3. Soil Boring and Soil Sampling Locations

3.1.1 Soil Boring #1

Soil Boring #1 was established at the original position of the previously removed UST as shown by Figure 3. This position was covered by crushed gravel aggregate. Soil samples PHC-0194-S1 and PHC-0194-S2 were collected at this location from depths of 5 feet BGS and 8.25 feet BGS, respectively. Analysis of sample PHC-0194-S1 found diesel range hydrocarbons at a concentration of 1,940 parts per million (ppm) while analysis of PHC-0194-S2 found diesel range hydrocarbons at a concentration of 1,648 ppm. Comparison of the analytical results (Appendix E) with the "Method A Cleanup Levels" (Cleanup Levels) of WAC-173-340-740 (Appendix F) indicates that remedial action is required at this location to reduce diesel range hydrocarbon concentrations to acceptable levels.

3.1.2 Soil Boring #2

Soil Boring #2 was established within the lawn area, southwest of the clinic building as shown by Figure 3. Sage collected one (1) soil sample PHC-0194-S3 at this location from a depth of 4.5 feet BGS. Analysis of this sample found no detectable petroleum hydrocarbons. Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicates that no remedial action is required at this location.

3.1.3 Soil Boring #3

Soil Boring #3 was established within the lawn area, west of the clinic building as shown by Figure 3. Sage collected one (1) soil sample PHC-0194-S4 at this location from a depth of 5 feet BGS. Analysis of this sample found diesel range hydrocarbons at a concentration of 1,585 ppm. Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicates that remedial action is required at this location to reduce diesel range hydrocarbon concentrations to acceptable levels.

3.1.4 Soil Boring #4

Soil Boring #4 was established within the lawn area, northwest of the clinic building as shown by Figure 3. Sage collected one (1) soil sample PHC-0194-S5 at this location from a depth of 5.5 feet BGS. Analysis of this sample found diesel range hydrocarbons at a concentration of 685 ppm. Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicates that remedial action is required at this location to reduce diesel range hydrocarbons to acceptable levels.

3.1.5 Soil Boring #5

Soil Boring #5 was established within the lawn area, west of the kennel structure as shown by Figure 3. Sage collected one (1) soil sample PHC-0194-S6 at this location from a depth of 6 feet BGS. Analysis of this sample found no detectable petroleum hydrocarbons. Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicates that no remedial action is required at this location.

3.1.6 Soil Boring #6

Soil Boring #6 was established within the lawn area, near the northern property border as shown by Figure 3. Sage collected one (1) soil sample PHC-0194-S7 at this location from a depth of 6 feet BGS. Analysis of this sample found no detectable petroleum hydrocarbons. Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicates that no remedial action is required at this location.

3.1.7 Soil Boring #7

Soil Boring #7 was established within the lawn area, near the northwestern property border as shown by Figure 3. Sage collected one (1) soil sample PHC-0194-S8 at this location from a depth of 6 feet BGS. Analysis of this sample found no detectable petroleum hydrocarbons. Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicates that no remedial action is required at this location.

3.1.8 Soil Boring #8

Soil Boring #8 was established within the lawn area, near the western property border as shown by Figure 3. Sage collected one (1) soil sample PHC-0194-S9 at this location from a depth of 6 feet BGS. Analysis of this sample found no detectable petroleum hydrocarbons. Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicates that no remedial action is required at this location.

3.1.9 Soil Boring #9

Soil Boring #9 was established within the lawn area, near the western property border as shown by Figure 3. Sage collected one (1) soil sample PHC-0194-S10 at this location from a depth of 5.5 feet BGS. Analysis of this sample found no detectable petroleum hydrocarbons. Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicates that no remedial action is required at this location.

3.1.10 Soil Boring #10

Soil Boring #10 was established near the southwest corner of the clinic building as shown by Figure 3. Sage collected one (1) soil sample PHC-0194-S11 at this location from a depth of 5.5 feet BGS. Analysis of this sample found diesel range hydrocarbons at a concentration of 1,187 ppm. Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicates that remedial action is required at this location.

3.1.11 Soil Boring #11

Soil Boring #11 was established immediately south of the clinic building as shown by Figure 3. Sage collected one (1) soil sample PHC-0194-S12 at this location from a depth of 5.5 feet BGS. Analysis of this sample found no detectable petroleum hydrocarbons. Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicates that no remedial action is required at this location.

3.1.12 Soil Boring #12

Soil Boring #12 was established at the edge of an asphalted parking lot, near the southern property border as shown by Figure 3. Sage collected one (1) soil sample PHC-0194-S13 at this location from a depth of 5.5 feet BGS. Analysis of this sample found no detectable petroleum hydrocarbons. Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicates that no remedial action is required at this location.

3.1.13 Soil Boring #13

Soil Boring #13 was also established at the edge of an asphalted parking lot, near the southern property border as shown by Figure 3. Sage collected one (1) soil sample PHC-0194-S14 at this location from a depth of 5.5 feet BGS. Analysis of this sample found no detectable petroleum hydrocarbons. Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicates that no remedial action is required at this location.

3.2 UST Removal

HMB removed the 500 gallon UST on July 1, 1994. Sage performed a visual inspection of the tank and the excavation. The tank was corroded and multiple holes, one of which is approximately ten (10) inches in diameter. Soil exposed within the entire tank excavation and the stockpile of soil generated during the tank removal process appear to be impacted by petroleum hydrocarbons.

Upon removal of the tank, Sage collected five (5) soil samples (PHC-0194-S17 through PHC-0194-S24) from within the tank excavation. Sage also collected three soil samples from the stockpile of soil generated during the tank removal process. Soil sampling methodologies are described by Appendix G and sampling locations are shown by Figure 4. Since a release had been confirmed, only one of these samples (PHC-0194-S21) was submitted to MTC for independent laboratory analysis. Analysis of this sample found:

- ♦ aged gasoline at a concentration of 2,500 ppm,
- ♦ diesel at a concentration of 1,560 ppm,
- ♦ no detectable benzene,
- ♦ toluene at a concentration of 371 ppb,
- ♦ ethylbenzene at a concentration of 8,100 ppb,
- ♦ xylenes at a concentration of 28,600 ppb and
- ♦ no detectable lead.

Comparison of the analytical results (Appendix E) with the Cleanup Levels (Appendix F) indicate that remedial action is required at this location to reduce aged gasoline, diesel and xylene concentrations to acceptable levels. The tank excavation was backfilled with imported fill and the stockpile of soil generated during the tank removal process. Sage also completed a copy of the WSDOE UST Site Check/Site Assessment Checklist and it is attached as Appendix H. HMB has completed a copy of the WSDOE Temporary/Permanent Closure and Site Assessment Notice and it is attached as Appendix I.

3.3 Soil Chemistry

The analytical results for soil samples indicate that the petroleum impacted soil is likely a result of an aged release of gasoline. Analysis of petroleum impacted samples, collected from soil borings, found aliphatic hydrocarbons in the gasoline range. However, no Benzene, Toluene, Ethylbenzene or Xylenes (BTEX) was detected. BTEX are volatile aromatic hydrocarbons which are present in fresh gasoline.

Toluene, ethylbenzene and xylenes were detected in one sample (PHC-0194-S21) which was collected from beneath the removed UST. The absence of benzene, and the relative concentrations of aromatic hydrocarbons, also indicate that the gasoline release is aged.

3.4 Groundwater Chemistry

Although Sage's scope of work did not include groundwater sampling, saturated soil conditions were found during the soil boring process. No groundwater measurements were made, but the groundwater surface likely lies at approximately 5 to 7 feet BGS. Based upon our observations, it is likely that petroleum impacted soil is in contact with the groundwater. The groundwater at this site is likely to be impacted by this release.

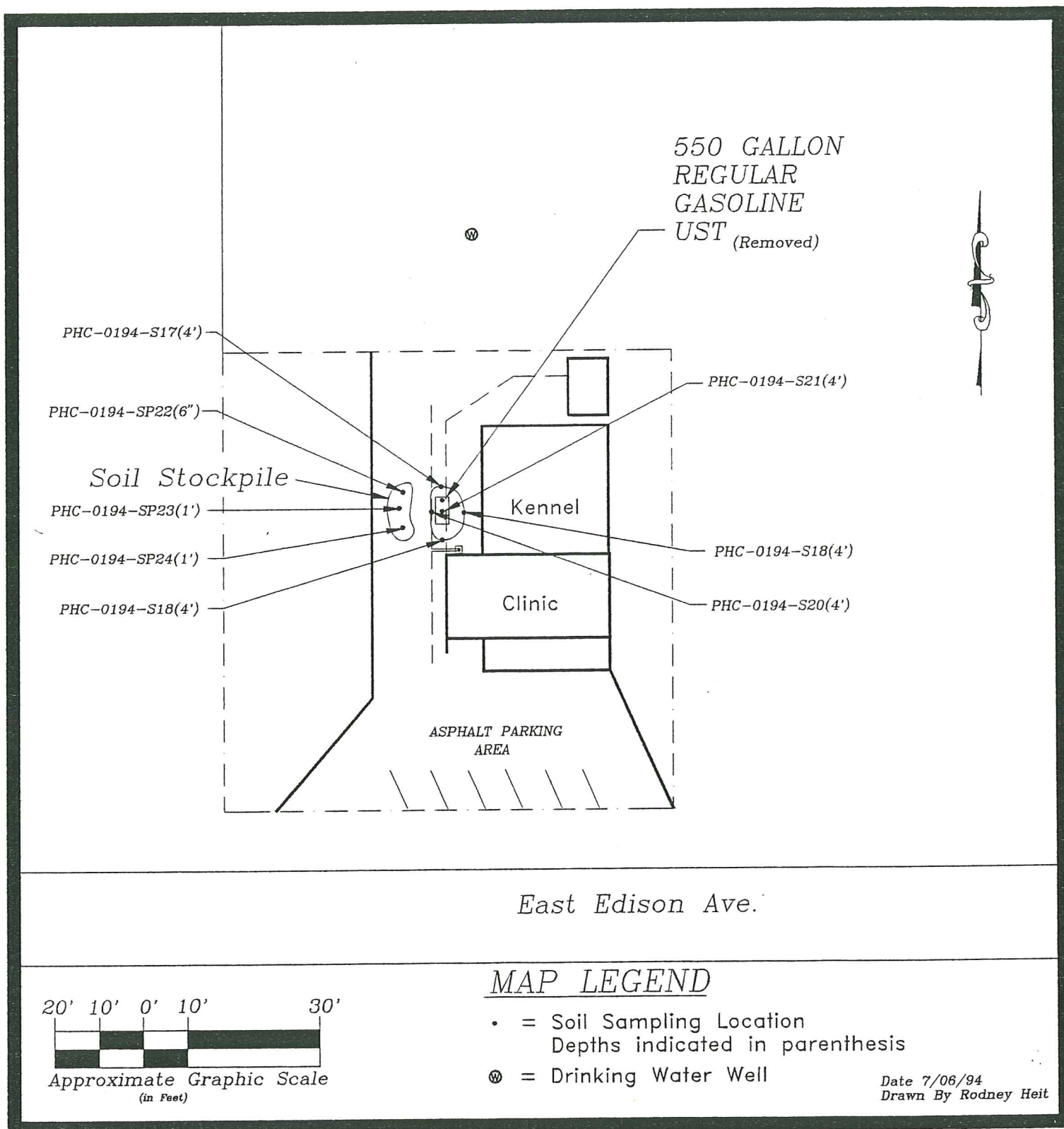


Figure 4. UST Removal Sampling Locations

4.0 Project Summary

Pet Health Clinic, Sunnyside, WA removed an UST with a capacity of 500 gallons in approximately 1992. Pet Health Clinic retained Sage to provide limited soil sampling to determine if a release had occurred at this tank location. HMB was retained to remove a 500 gallon gasoline tank near the location of the previously removed tank.

Sage used a stainless steel soil auger to collect a soil sample at the location of the previously removed UST. This soil exhibited a strong odor of aged gasoline. Pet Health Clinic expanded Sage's scope of work to determine the approximate extent of petroleum impacted soil and sampling upon removal of a 500 gallon gasoline UST.

Sage established twelve (12) additional soil borings to facilitate collection of soil samples. The soil samples were submitted to MTC for independent laboratory analysis. The analytical results found diesel range petroleum hydrocarbons in four of the additional soil borings. The presence of aliphatic hydrocarbons, as well as the absence of BTEX compounds, indicates that petroleum hydrocarbons originated from an aged release from at least one of the UST systems.

The impacted soil was found to extend beyond the south wall of the veterinary clinic. The eastern extent of impacted soil was not determined. Impacted soil also appears to extend beneath the asphalted driveway and into the lawn. The mid portion of a row of pine trees at the western property border appears to be distressed. However, analysis of soil samples indicates that the petroleum release has not yet migrated off of the property.

HMB removed the 500 gallon UST on July 1, 1994. Soil exposed within the tank excavation, as well as the stockpile of soil generated during the tank removal process, appeared to be impacted by the petroleum release. Since no remediation was included in the scope of work for the project, HMB backfilled the tank excavation with the soil stockpile and imported fill material. Analysis of a soil sample collected from the tank excavation floor found aged gasoline, diesel range hydrocarbons, toluene, ethylbenzene and xylenes.

Comparison of the analytical results with the Cleanup Levels indicates that the majority of impacted soil requires remediation to reduce diesel concentrations to acceptable concentrations. In addition, remediation is also required to reduce aromatic hydrocarbon concentrations in soil adjacent to the 500 gallon UST.

Although groundwater sampling was not included in the scope of work for this project, saturated soils were encountered within soil borings. It appears that petroleum impacted soil is in contact with groundwater in the surficial aquifer.

5.0 Recommendations

Based upon the analytical results, remedial action is necessary to reduce petroleum hydrocarbon concentrations in the soil. It is likely that groundwater remediation will also be necessary since petroleum impacted soil is likely in contact with the groundwater.

Since petroleum impacted soil appears to be in contact with the groundwater, Sage recommends installation of at least three (3) groundwater monitoring wells to facilitate collection of groundwater samples and to determination of hydrogeologic conditions. Samples should be collected from the wells and analyzed for gasoline, diesel and BTEX.

Upon determining if the groundwater is impacted by the release, an appropriate remedial action may be chosen to contain the release and reduce petroleum hydrocarbon concentrations. In addition, Sage recommends periodic sampling of the domestic well to determine if the water is impacted by petroleum products.

6.0 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 and independent laboratory analyses. Since the scope of work for this project is limited to partial characterization of a petroleum hydrocarbon release, this document does not imply that the property is free of other environmental constraints.

Appendix A



SAGE
Earth Sciences, Inc.
602 Cherryhill Lane
P.O. Box 1644

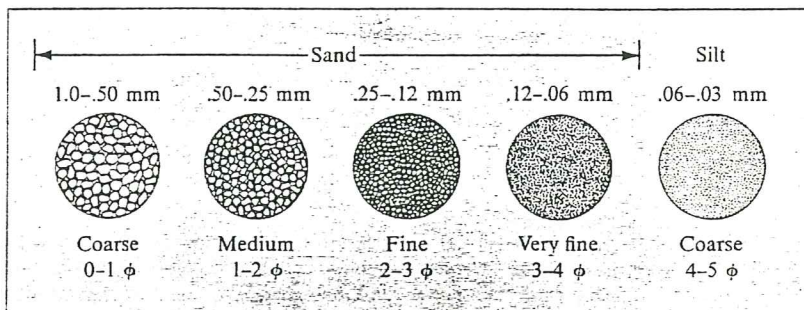
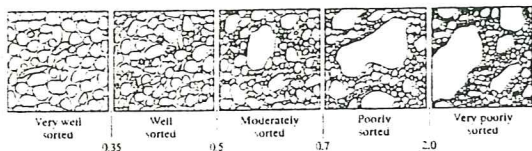
Earth Sciences, Inc.
602 Cherryhill Lane
P.O. Box 1644
Zillah, WA 98953
Phone (509) 222-6400

Project Name PET HEALTH CLINIC Project # VHC-0199

Address 2210-A East Edison Ave S.W. WA. Date 7-1-99

Location SE 1/4 NW 1/4 Sec. 30 T. 10 N. R. 23 E., W.M. Elevation ~ 750 Datum mean sea level

Pit Dimensions 10' x 8' x 7' Finish Depth 7' Pit Orientation NORTH-SOUTH



Additional Detrital Rock Classifications on Reverse

Description of Lithologies

ASPHALT PAVEMENT TO A DEPTH OF 2" (INCHES)
~~TO~~ TO BGS.

Clayey Silts from 2" (inches) BGS. TO
A DEPTH OF 7' BGS. @ WHICH TIME
THE EXCAVATION WAS TERMINATED

GROUND WATER WAS NOT ENCOUNTERED
WITHIN THE EXCAVATION

BUT IS BELIEVED TO BE ENCOUNTERED
② A DEPTH BETWEEN 8' BGS — TO
10' (FEET) BGS. AS INDICATIVE
OF THE SURROUNDING AREAS.

[illegible]

SAGE Representative

Date _____

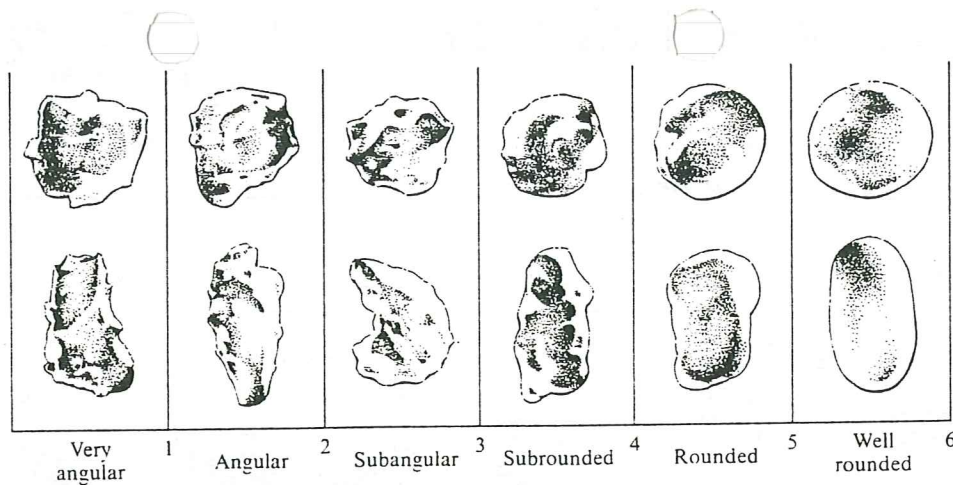


Figure 13-4
Terminology for degree of rounding of detrital grains using a hand lens. The numbers assigned to each roundness class permit calculation of mean roundness and standard deviation. [After M. C. Powers, 1953, *Jour. Sed. Petrology*, 23, Fig. 1.]

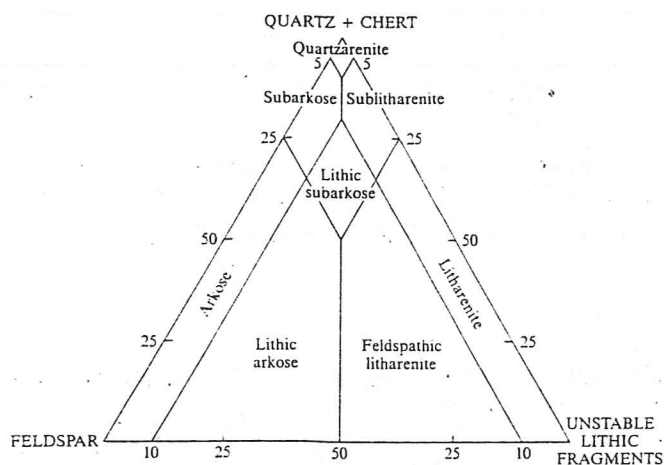
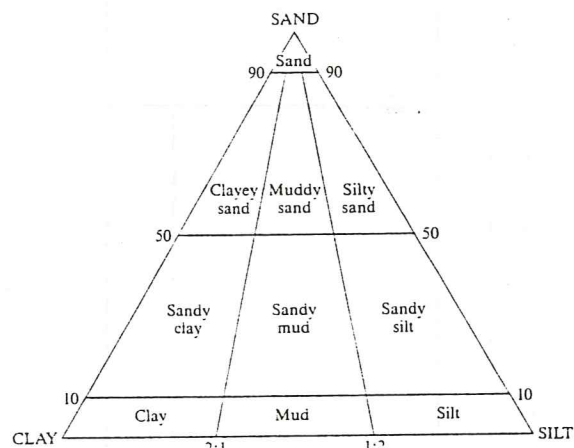


Figure 13-37
One of the many mineralogical classifications of sandstones in common use. [From E. F. McBride, 1963, *Jour. Sed. Petrology*, 33, Fig. 1.]



The Udden-Wentworth Grain Size Scale for Clastic Sediments*

	Name	Millimeters	Micrometers	ϕ
GRAVEL	Boulder	4,096		-12
	Cobble	256		-8
	Pebble	64		-6
	Granule	4		-2
SAND	Very coarse sand	2		-1
	Coarse sand	1		0
	Medium sand	0.5	500	1
	Fine sand	0.25	250	2
	Very fine sand	0.125	125	3
	Coarse silt	0.062	62	4
MUD	Medium silt	0.031	31	5
	Fine silt	0.016	16	6
	Very fine silt	0.008	8	7
	Clay	0.004	4	8

*As devised by J. A. Udden (1898) and C. K. Wentworth (1924). The ϕ scale (Krumbein, 1934) was devised to facilitate statistical manipulation of grain-size data and is commonly used. $\phi = -\log_2 \text{mm}$.

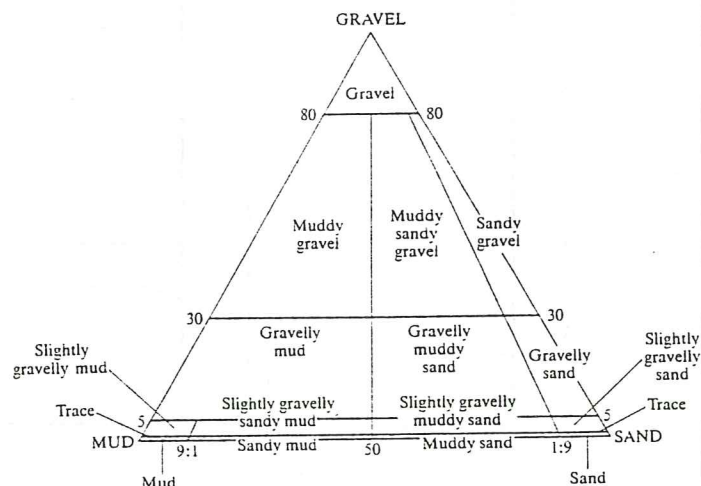


Figure 13-39
Triangular classification of grain sizes in detrital rocks. If no gravel is present, triangle A is used; if gravel is present, triangle B. Note the emphasis given to even a trace amount of gravel. [From R. L. Folk, 1954, *Jour. Geology*, 62, Fig. 1.]

Appendix B

Soil Boring Sampling Methodology

To collect representative soil samples using the soil auger, Sage Earth Sciences used the methodology outlined below.

1. Decontaminate the stainless steel soil auger using a tri-sodium phosphate wash. Rinse the soil auger with distilled water to remove residual contaminants. Establish soil boring to desired sampling depth.
2. Select a Protocol A (laboratory certified clean) sample jar whose volume is adequate for the appropriate analysis.
3. Immediately transfer soil contained within the auger to the sample container. Using new disposable 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.

Appendix C

Project # PHC-0194
Date 5/11/94
Sampler Rodney Hunt
Sheet 1 of 1

[illegible]

_____ Units

SB = SOIL BORING
S = Soil Sample
GW = Groundwater Sample
SW = Surface Water Sample
D = Duplicate Sample (10 % of samples/matrix)
TB = Travel Blank

Project # PHC - 0194
Date 5-16-94
Sampler Dave Green & Rodney Heit
Sheet 1 of 1

Ambient Vapors
TLC Standards

—
—
—

dup = duplicate sample

Daily Field Sampling Log

Project # PHC-0194
Date 7-1-94
Sampler RODNEY L HEIT
Sheet 1 of 1

[illegible]

Ambient Vapors
TLC Standards

N/A Units
NOT REQUESTED
NO FIELD SCREENING
USED

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

Appendix D

Analytical Methods

For confirmatory laboratory analysis, Sage submitted soil samples to:

Materials Testing & Consulting, Inc.
1151 Knudson
Burlington, WA 98233
(206) 757-1400

Analytical parameters were chosen in accordance with guidelines established in the DOE Guidance for Site Checks and Site Assessments of Underground Storage Tanks. The analytical parameters chosen for selected samples consist of:

- ♦ HCID (Hydrocarbon Identification),
- ♦ WTPH-G (Gasoline Range Hydrocarbons),
- ♦ WTPH-D (Diesel Range Hydrocarbons)
- ♦ EPA Method 8020 (Benzene, Toluene, Ethylbenzene & Xylenes) and
- ♦ EPA Method 3050/7420 (Total Lead).

Quality Control

Sage's Quality Assurance Plan included collection of one (1) duplicate sample (PHC-0194-S11) collected with the soil auger. The duplicates are noted on the Daily Field Sampling Log (Appendix C). In addition, two (2) travel blanks were analyzed for the sample shipment. The travel blanks analyzed during the project consisted of PHC-0194-TB16 and PHC-0194-TB25.

Collection and analysis of the duplicate sample was utilized to estimate random error in the sampling and analytical measurement process. Analysis of the travel blanks were used to detect contamination from transport and/or storage practices. If analysis of duplicate samples indicate that error is unacceptable, or contaminants are detected in the travel blanks, the results are reported. Otherwise, MTC maintains the QA/QC records. Review of the QA/QC, by MTC, indicates that the error is within acceptable limits.

Appendix E

MTC*Analytical/Environmental Services***Materials Testing & Consulting, Inc**WSDOE Laboratory # C057
WSDOH Laboratory #46092090

P.O. Box 309

Mount Vernon, WA 98273
(206)757-1400 - FAX (206)757-1402Client: 84
Sage Earth Sciences
1108 Hillcrest
Grandview, WA 98930Date: 7/18/94
Reference: 94-0867

Attn: Mr. Dave Green

Project: Pet Health Clinic

Data Report

Lab Number	Sample Description	ug/gm	ng/gm				Surrogate
		TPH	Benzene	Toluene	Ebenzene	Xylenes	% Recovery
84-94-01942.0S	PHC-0194-S1	1940-D*	nd	nd	nd	nd	107
84-94-01943.0S	PHC-0194-S2	1648-D*	nd	nd	nd	nd	93
84-94-01944.0S	PHC-0194-S3	nd	nd	nd	nd	nd	107
84-94-01945.0S	PHC-0194-S4	1585-D*	nd	nd	nd	nd	114
84-94-01946.0S	PHC-0194-S5	685-D*	nd	nd	nd	nd	109
84-94-01947.0S	PHC-0194-S6	nd	nd	nd	nd	nd	112
84-94-01948.0S	PHC-0194-S7	nd	nd	nd	nd	nd	106
84-94-01949.0S	PHC-0194-S8	nd	nd	nd	nd	nd	93
84-94-01950.0S	PHC-0194-S9	nd	nd	nd	nd	nd	98
84-94-01951.0S	PHC-0194-S10	nd	nd	nd	nd	nd	102
84-94-01952.0S	PHC-0194-S11(dup)	1187-D*	nd	nd	nd	nd	101
84-94-01953.0S	PHC-0194-S12	nd	nd	nd	nd	nd	100
84-94-01954.0S	PHC-0194-S13	nd	nd	nd	nd	nd	92
84-94-01955.0S	PHC-0194-S14	nd	nd	nd	nd	nd	90
		*NOTE: Samples contained aliphatic hydrocarbons in the gasoline range. No BTEX or other substituted aromatics were detected.					
Methods:							EPA Acceptance Limits
WSDOE: WTPH-G/WTPH-D							
G- Gasoline D-Diesel		Soil/Water	Soil/Water	Soil/Water	Soil/Water	Soil/Water	
Method Reporting Limit (MRL)		10.0/0.10	10.0/1.0	10.0/1.0	10.0/1.0	10.0/1.0	Soil: 84-138
Maximum Contamination Levels		100/1	500/5	20000/20	40000/40	20000/20	H20: 88-110



Kurt W. Larsen

Sr. Environmental Chemist

MTC**Analytical/Environmental Services****Materials Testing & Consulting, Inc**

WSDOE Laboratory #C057

WSDOH Laboratory #046

P.O. Box 309

Mount Vernon, WA 98273

(206)757-1400 - FAX (206)757-1402

Client: Sage Earth Sciences

P.O. Box 1644

Zillah, WA 98953

Date: 5/20/94

Reference: 94-0867

Attn:

Project: Pet Health Clinic

Data Report

Lab Number	Sample Description					
		Pb	Units			
84-94-01942.1S	PHC-0194-S1	<25				
	Method Blank	<.050	mg/L			
	QC, 5 mg/L	4.90	mg/L			
	Methods: 3050/7420					
		Soil/Water				
	Method Reporting Limit (MRL)	25/5				
	Maximum Contamination Level(MCL)	250/50				

Mary Price
Chemist

M940867

MTC**Analytical/Environmental Services****Materials Testing & Consulting, Inc**

WSDOE Laboratory #C057

WSDOH Laboratory #046

P.O. Box 309

Mount Vernon, WA 98273

(206)757-1400 - FAX (206)757-1402

Client: Sage Earth Sciences
P.O. Box 1644
Zillah, WA 98953

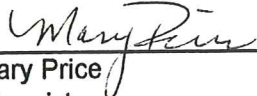
Date: 6/14/94
Reference: 94-0867

Attn:

Project: Pet Health Clinic

Data Report

Lab Number	Sample Description						
		Pb	Units				
84-94-01952.1S	PHC-0194-S11	<25	mg/Kg				
	PHC-0194-S11 dup	<25	mg/Kg				
84-94-01956.1W	PHC-0194-W15	<5.0	ug/L				
	Method Blank	<0.50	mg/L				
	QC, 5 mg/L	4.94	mg/L				
	Methods: 3050/7420						
		Soil/Water					
	Method Reporting Limit (MRL)	25/5					
	Maximum Contamination Level(MCL)	250/50					


Mary Price
Chemist

m940867



P.O. Box 1644
601 Glenwood Drive
Zillah, WA 98953
Phone (509) 829-6400
Fax (509) 829-6443

CHAIN-OF-CUSTODY FORM
Project Name PET Health Clinic
Project Number PHC-0194
Sampler Rodney West
Date 5/16/94 Time 3:00 pm
Destination Materials Testing & Consulting

Sample Number	Matrix	Number of Containers	Container Size	H ₂ O	WTRH	8020	602	TOTAL (LEAD + ZINC)	PLEASE ARCHIVE	Analyses Requested
PHC-0194-S1	SOIL	1	80Z	X	X	X	X	X	X	PLEASE RUN THIS SAMPLE FIRST, THEN CALL
PHC-0194-S2	SOIL	1	80Z	X	X	X	X	X	X	PLEASE DO NOT RUN THIS SAMPLE
PHC-0194-S3	SOIL	1	40Z	X	X	X	X	X	X	
PHC-0194-S4	SOIL	1	40Z	X	X	X	X	X	X	
PHC-0194-S5	SOIL	2	40Z	X	X	X	X	X	X	
PHC-0194-S6	SOIL	2	40Z	X	X	X	X	X	X	
PHC-0194-S7	SOIL	2	40Z	X	X	X	X	X	X	
PHC-0194-S8	SOIL	2	40Z	X	X	X	X	X	X	
PHC-0194-S9	SOIL	2	40Z	X	X	X	X	X	X	
PHC-0194-S10	SOIL	2	40Z	X	X	X	X	X	X	
PHC-0194-S11	SOIL	2	40Z	X	X	X	X	X	X	DUPLICATE SAMPLE
PHC-0194-S12	SOIL	2	40Z	X	X	X	X	X	X	
PHC-0194-S13	SOIL	2	40Z	X	X	X	X	X	X	
PHC-0194-S14	SOIL	2	40Z	X	X	X	X	X	X	
PHC-0194-W15	WATER	3	1 LITER 2 40ML WAT.	X	X	X	X	X	X	

Relinquished by: Rodney West Date: 5/17/94 Time: 12:00pm
Firm: Sage Earth Sciences Inc.

Relinquished by: McAdoo Date: 5/18/94 Time: 9am
Firm: UTC

Relinquished by: 94-0867 Date: Time:
Firm:

Container Condition: Good Violated
Cool (4°C): Yes No
Custody Seals: Intact Violated



*P.O. Box 1644
601 Glenwood Drive
Zillah, WA 98953
Phone (509) 829-6400
Fax (509) 829-6443*

CHAIN-OF-CUSTODY FORM

Project Name PET Health Clinic
 Project Number PHC - 0194
 Sampler Robyn Kest
 Date 5/16/94 Time 3:00 pm
 Destination Materials Testing & Consulting

[illegible]

MTC

Analytical/Environmental Services

Materials Testing & Consulting, Inc

WSDOE Laboratory #C057

WSDOH Laboratory #046

P.O. Box 309

Mount Vernon, WA 98273

(206)757-1400 - FAX (206)757-1402

84

Client: Sage Earth Sciences
P.O. Box 1644
Zillah, WA 98953

Report Date: 7/13/94

Reference: 94-1189

Date Analyzed: 7/11/94

Attn: Mr Dave Green

Project: Pet Health Clinic
Date Sampled: 7/5/94

Data Report

Page: 1 of 1

Lab Number	Sample Description	ppm	ppb				Surrogate
		TPH	Benzene	Toluene	Ebenzene	Xylenes	% Recovery
84-94-02589.0S	PHC-0194-S21	2500-AG	nd	371	8100	28600	92
84-94-02589.0S		1560-D					
Methods: WSDOE: WTPH-G/WTPH-D G- Gasoline A-Aged D-Diesel		Soil/Water					Soil/Water
Method Reporting Limit (MRL)**		10.0/0.10	100/1.0	100/1.0	100/1.0	100/1.0	Soil: 50-150
Maximum Contamination Levels		100/1	500/5	40000/40	20000/30	20000/20	H20: 50-150

Comments: * - indicates heavier hydrocarbons

** - A value of "<n" indicates elevated detection limits due to dilution or chromatographic interference

MS - Matrix Spike at 200 ppm Gasoline/Diesel


kwl
QC Review: 

MTC**Analytical/Environmental Services****Materials Testing & Consulting, Inc**

WSDOE Laboratory #C057

WSDOH Laboratory #046

P.O. Box 309

Mount Vernon, WA 98273

(206)757-1400 - FAX (206)757-1402

Client: Sage Earth Sciences

P.O. Box 1644

Zillah, WA 98953

Date: 7/11/94


Reference: 94-1189

Attn:

Project: Pet Health Clinic

Data Report

Lab Number	Sample Description						
		Pb	Units				
84-94-02589.1S	PHC-0194-S21	<25	mg/kg				
	PHC-0194-S21 dup	<25	mg/kg				
	Method Blank	<0.5	mg/L				
	QC, 5 mg/L	5.90	mg/L				
	Methods:						
	3050/7420						
		Soil/Water					
	Method Reporting Limit (MRL)	25/5					
	Maximum Contamination Level(MCL)	250/50					

Mary Price
Chemist

m941189



Earth Sciences, Inc.

P.O. Box 1644
601 Glenwood Drive
Zillah, WA 98953
Phone (509) 829-6400
Fax (509) 829-6443

CHAIN-OF-CUSTODY FORM

Project Name PET HEALTH CLINIC
 Project Number PHC-0194
 Sampler ROANEY HEIT
 Date _____ Time _____
 Destination Naturalistic Settings - Convent

[illegible]

Appendix F

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

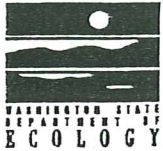
Appendix G

Soil Sampling Methodology

Soil sampling locations were chosen at locations considered representative of soil conditions. To collect representative soil samples, Sage Earth Sciences uses the methodology outlined below.

1. Select a new sample jar whose volume is adequate for the appropriate analysis.
2. Remove a minimum of six (6) inches of soil to minimize the loss of volatile compounds.
3. Immediately transfer soil to the sample container, using the container itself to collect the sample. Using new nitrile 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 and the Daily Field Sampling Log.
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 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.

Appendix H



UNDERGROUND STORAGE TANK Site Check/Site Assessment Checklist

For Office Use Only

Owner # _____

Site # _____

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): None

Site/Business Name: Pet Health Clinic

Site Address: 2210-A East Edison Telephone: (509) 829-6515
Street
Sunnyside WA 98944
City State ZIP-Code

TANK INFORMATION

Tank ID No.	Tank Capacity	Substance Stored
<u>None</u>	<u>unknown</u>	<u>unknown petroleum</u>
<u>None</u>	<u>500 gallons</u>	<u>gasoline</u>

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): _____

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.	REH	
2.	A brief summary of information obtained during the site inspection is provided. (see Section 3.2 in site assessment guidance)	REH	
3.	A summary of UST system data is provided. (see Section 3.1)	REH	
4.	The soils characteristics at the UST site are described. (see Section 5.2)	REH	
5.	Is there any apparent groundwater in the tank excavation?		REH
6.	A brief description of the surrounding land use is provided. (see Section 3.1)	REH	
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.	REH	
8.	A sketch or sketches showing the following items is provided:		
	- location and ID number for all field samples collected	REH	
	- groundwater samples distinguished from soil samples (if applicable)	REH	
	- samples collected from stockpiled excavated soil	REH	
	- tank and piping locations and limits of excavation pit	REH	
	- adjacent structures and streets	REH	
	- approximate locations of any on-site and nearby utilities	REH	
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)	REH	
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.	REH	
11.	Any factors that may have compromised the quality of the data or validity of the results are described.	REH	
12.	The results of this site check/site assessment indicate that a confirmed release of a regulated substance has not occurred.		REH

SITE ASSESSOR INFORMATION

Rodney Heit Sage Earth Sciences, Inc.
 Person registered with Ecology Firm Affiliated with
 Business Address: 601 Glenwood Drive Telephone: (509) 829-6700
Zillah WA 98953
Street City State 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.

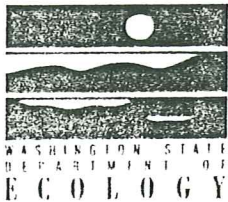
8-2-94

Date

Rodney L Heit

Signature of Person Registered with Ecology

Appendix I



**UNDERGROUND STORAGE TANK
TEMPORARY/PERMANENT CLOSURE
and SITE ASSESSMENT NOTICE**

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

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

For Office Use Only

Owner # _____

Site # _____

SITE INFORMATION

Site ID Number (on invoice or available from Ecology if the tanks are registered): Not registered
Site/Business Name: Pet Health Clinic
Site Address: 2210A East Edison Telephone: (509) 829-6515
Sunnyside ^{Street} Wa 98944 _{City} State ZIP Code

TANK INFORMATION

Tank ID	Closure Date	Tank Capacity	Substance Stored
#1	7/1/94	500 gallon	gasoline

**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: Pet Health Clinic
Owners Signature: Mike Collins Telephone: (509) 829-6515
Address: 90 S. Cheyne Road P.O. Box
Zillah, Wa 98953 ^{Street} _{City} State ZIP Code

TANK CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Service Provider: HMB Const., Inc License Number: S002376
Licensed Supervisor: Daryl D. Burnett Decommissioning License Number: W002039
Supervisors Signature: Daryl D. Burnett
Address: 100 W Canal Drive P.O. Box
Kennewick, Wa 99336 ^{Street} _{City} State ZIP Code
Telephone: (509) 582-9653

SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Name of Registered Site Assessor: Sage Earth Science, Inc.
Telephone: (509) 829-6400
Address: 802 Cherry Hill Lane P.O. Box 1644
Zillah, Wa 98953 ^{Street} _{City} State ZIP Code